

SEQUENCE LISTING

<110> Council of Scientific and Industrial Research

<120> A COMPUTATIONAL METHOD FOR THE IDENTIFICATION OF CANDIDATE PROTEINS
USEFUL AS ANTI-INFECTIVES

<130> Q63915

<160> 118

<170> PatentIn version 3.0

<210> 1

<211> 51

<212> PRT

<213> C. jejuni

<220>

<221> misc_feature

<223> highly acidic protein

<220>

<221> misc_feature

<223> gi|6967728

<400> 1

Met Ala Tyr Glu Asp Glu Glu Asp Leu Asn Tyr Asp Asp Tyr Glu Asn
1 5 10 15

Glu Asp Glu Glu Tyr Pro Gln Asn His His Lys Asn Tyr Asn Tyr Asp
20 25 30

Asp Asp Asp Tyr Glu Tyr Asp Asp Asp Asn Asn Asp Asp Asp Phe Tyr
35 40 45

Glu Met Asp
50

<210> 2

<211> 32

<212> PRT

<213> C. jejuni

<220>

<221> misc_feature

<223> small hydrophobic protein

<220>

<221> misc_feature

<223> gi|6969129

<400> 2

Met Thr Met Leu Asp Ile Phe Glu Ile Ile Phe Ile Thr Thr Val Val
1 5 10 15

Ile Ile Gly Phe Gly Gly Ile Val Phe Val Val Thr Lys Glu Lys Lys
20 25 30

<210> 3

<211> 57

<212> PRT

<213> C. jejuni

<220>

<221> misc_feature

<223> putative coiled coil protein

<220>

<221> misc_feature

<223> gi|6968493

<400> 3

Met Ser Phe Glu Glu Asn Leu Lys His Ala Asn Glu Ser Leu Glu Lys
1 5 10 15

Leu Asn Asn Gln Glu Leu Ala Leu Asp Glu Ser Val Lys Ile Tyr Lys
20 25 30

Glu Gly Leu Glu Ser Ile Lys Lys Ala Arg Leu Glu Leu Glu Lys Ala
35 40 45

Lys Leu Glu Val Glu Gln Ile Asp Glu
50 55

<210> 4

<211> 542

<212> PRT

<213> C. jejuni

<220>

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<223> highly acidic protein

<220>

<221> misc_feature

<223> gi|6968611

<400> 4

Met Lys Ile Leu Leu Leu Asn Glu Asn Pro Val Val Ser Arg Leu Val

Glu Asp Leu Ser Gln Glu His Thr Ala Leu Asp Thr Glu Pro Ser Leu
 305 310 315 320
 Asp Glu Leu Asp Asp Lys Asn Asp Glu Asp Leu Glu Asp Asn Lys Glu
 325 330 335
 Leu Gln Ala Asn Ile Ser Asp Phe Asp Asp Leu Pro Glu Val Glu Glu
 340 345 350
 Gln Glu Lys Glu Met Asp Phe Asp Asp Leu Pro Glu Asp Ala Glu Phe
 355 360 365
 Leu Gly Gln Ala Lys Tyr Asn Glu Glu Ser Glu Glu Asn Leu Glu Glu
 370 375 380
 Phe Ala Pro Val Val Glu Glu Asp Ile Gln Asp Glu Ile Asp Asp Phe
 385 390 395 400
 Ala Ser Asn Leu Ser Thr Gln Asp Gln Ile Lys Glu Glu Leu Ala Gln
 405 410 415
 Leu Asp Glu Leu Asp Tyr Gly Ile Asp Ser Asp Asn Ser Ser Lys Val
 420 425 430
 Leu Glu Asp Phe Lys Asp Glu Pro Ile Leu Asp Asp Lys Glu Leu Gly
 435 440 445
 Thr Asn Glu Glu Glu Val Val Val Pro Asn Leu Asn Ile Ser Asp Phe
 450 455 460
 Asp Thr Leu Lys Glu Ser Asp Ile Gln Glu Ala Leu Gly Glu Glu Ile
 465 470 475 480
 Leu Glu Lys Asn Glu Glu Pro Ile Val Ser Asp Val Thr Lys Asp Asp
 485 490 495
 Asn Ser Glu Glu Ile Val Asn Glu Leu Ser Gln Ser Ile Ala Gly Ala
 500 505 510
 Ile Thr Ser Ser Ile Lys Asp Asp Thr Leu Lys Ala Ala Leu Lys Gly
 515 520 525
 Met Asn Met Asn Ile Asn Ile Asn Ile Ser Phe Lys Glu Asp
 530 535 540

<210> 5
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 <212> PRT
 <213> C. pneumoniaeCWL029

 <220>
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 <223> histone like protein 2

<220>
 <221> misc_feature
 <223> gi|4376663

<400> 5

Met Ile Gly Ala Gln Lys Lys Gln Ser Gly Lys Lys Thr Ala Ser Arg
 1 5 10 15
 Ala Val Arg Lys Pro Ala Lys Lys Val Ala Ala Lys Arg Thr Val Lys
 20 25 30
 Lys Ala Thr Val Arg Lys Thr Ala Val Lys Lys Pro Ala Val Arg Lys
 35 40 45
 Thr Ala Ala Lys Lys Thr Val Ala Lys Lys Thr Thr Ala Lys Arg Thr
 50 55 60
 Val Arg Lys Thr Val Ala Lys Lys Pro Ala Val Lys Lys Val Ala Ala
 65 70 75 80
 Lys Arg Val Val Lys Lys Thr Val Ala Lys Lys Thr Thr Ala Lys Arg
 85 90 95
 Ala Val Arg Lys Thr Val Ala Lys Lys Pro Val Ala Arg Lys Thr Thr
 100 105 110
 Val Ala Lys Gly Ser Pro Lys Lys Ala Ala Ala Cys Ala Leu Ala Cys
 115 120 125
 His Lys Asn His Lys His Thr Ser Ser Cys Lys Arg Val Cys Ser Ser
 130 135 140
 Thr Ala Thr Arg Lys His Gly Ser Lys Ser Arg Val Arg Thr Ala His
 145 150 155 160
 Gly Trp Arg His Gln Leu Ile Lys Met Met Ser Arg
 165 170

<210> 6
 <211> 63
 <212> PRT
 <213> C. trachomatis

<220>
 <221> misc_feature
 <223> hypothetical protein-possible frameshift with CT593

<220>
 <221> misc_feature
 <223> gi|3522902

<400> 6

Met Phe Thr Leu Phe Leu Cys Glu His Leu Leu Thr Asn Ile Leu Ala
1 5 10 15
Ser Ser Phe Leu Ala Lys Ser Gln Gly Phe Ile Thr Leu Val Asn Leu
20 25 30
Phe His Lys Ile Pro Gly Leu Lys Val Ile Glu Ile Thr Cys Leu Ala
35 40 45
Leu Pro Leu Gly Ile His Ser Ile Ile Gly Phe Ser Tyr Leu Leu
50 55 60

<210> 7

<211> 203

<212> PRT

<213> C. trachomatis

<220>

<221> misc_feature

<223> histone like protein 2

<220>

<221> misc_feature

<223> gi|3328438

<400> 7

Met Asn Met Leu Gly Val Gln Lys Lys Cys Ser Thr Arg Lys Thr Ala
1 5 10 15
Ala Arg Lys Thr Val Val Arg Lys Pro Ala Ala Lys Lys Thr Ala Ala
20 25 30
Lys Lys Ala Pro Val Arg Lys Val Ala Ala Lys Lys Thr Val Ala Arg
35 40 45
Lys Thr Val Ala Lys Lys Thr Val Ala Ala Arg Lys Pro Val Ala Lys
50 55 60
Lys Ala Thr Ala Lys Lys Ala Pro Val Arg Lys Val Ala Ala Lys Lys
65 70 75 80
Thr Val Ala Arg Lys Thr Val Ala Lys Lys Thr Val Ala Ala Arg Lys
85 90 95
Pro Val Ala Lys Lys Ala Thr Ala Lys Lys Ala Pro Val Arg Lys Ala
100 105 110
Val Ala Lys Lys Thr Val Ala Arg Lys Thr Val Ala Lys Lys Thr Val
115 120 125

Ala Ala Arg Lys Pro Val Ala Lys Arg Val Ala Ser Thr Lys Lys Ser
130 135 140

Ser Ile Ala Val Lys Ala Gly Val Cys Met Lys Lys His Lys His Thr
145 150 155 160

Ala Ala Cys Gly Arg Val Ala Ala Ser Gly Val Lys Val Cys Ala Ser
165 170 175

Ala Ala Lys Arg Lys Thr Asn Pro Asn Arg Ser Arg Thr Ala His Ser
180 185 190

Trp Arg Gln Gln Leu Met Lys Leu Val Ala Arg
195 200

<210> 8

<211> 372

<212> PRT

<213> H. influenzae

<220>

<221> misc_feature

<223> outer membrane integrity protein (tolA)

<220>

<221> misc_feature

<223> gi|1573353

<400> 8

Met Gln Asn Asn Arg Gln Lys Lys Gly Ile Asn Ala Phe Ala Ile Ser
1 5 10 15

Ile Leu Leu His Phe Ile Leu Phe Gly Leu Leu Ile Leu Ser Ser Leu
20 25 30

Tyr His Thr Val Glu Ile Met Gly Gly Gly Glu Gly Glu Gly Asp Val
35 40 45

Ile Gly Ala Val Ile Val Asp Thr Gly Thr Ala Ala Gln Glu Trp Gly
50 55 60

Arg Ile Gln Gln Gln Lys Lys Gly Gln Ala Asp Lys Gln Lys Arg Pro
65 70 75 80

Glu Pro Val Val Glu Glu Lys Pro Pro Glu Pro Asn Gln Glu Glu Ile
85 90 95

Lys His Gln Gln Glu Val Gln Arg Gln Glu Glu Leu Lys Arg Gln Gln
100 105 110

Glu Gln Gln Arg Gln Gln Glu Ile Lys Lys Gln Gln Glu Gln Ala Arg

115	120	125
Gln Glu Ala Leu Glu Lys	Gln Lys Gln Ala Glu	Glu Glu Ala Lys Ala Lys
130	135	140
Gln Ala Ala Glu Ala Ala Lys	Leu Lys Ala Asp Ala Glu	Ala Lys Arg
145	150	155 160
Leu Ala Ala Ala Ala Lys	Gln Ala Glu Glu Glu Ala	Lys Ala Lys Ala
165	170	175
Ala Glu Ile Ala Ala Gln Lys	Ala Lys Gln Glu Ala Glu	Ala Lys Ala
180	185	190
Lys Leu Glu Ala Glu Ala Lys	Ala Lys Ala Val Ala Glu	Ala Lys Ala
195	200	205
Lys Ala Glu Ala Glu Ala Lys	Ala Lys Ala Ala Ala Glu	Ala Lys Ala
210	215	220
Lys Ala Asp Ala Glu Ala Lys	Ala Ala Thr Glu Ala Lys	Arg Lys Ala
225	230	235 240
Asp Gln Ala Ser Leu Asp Asp	Phe Leu Asn Gly Gly Asp	Ile Gly Gly
245	250	255
Gly Ser Ala Ser Lys Gly Gly	Asn Thr Asn Lys Gly Gly	Thr Gln Gly
260	265	270
Ser Gly Ala Ala Leu Gly Ser	Gly Asp Gly Gly Lys Val	Gly Asp Gln
275	280	285
Tyr Ala Gly Val Ile Lys Lys	Glu Ile Gln Arg Arg Phe	Leu Lys Asp
290	295	300
Pro Asn Phe Ala Gly Lys Val	Cys Arg Ile Lys Ile Gln	Leu Gly Arg
305	310	315 320
Asp Gly Thr Ile Leu Gly Tyr	Gln Lys Ile Ser Gly Ser	Asp Asp Ile
325	330	335
Cys Ser Ala Ala Leu Ser Ala	Val Ala Arg Thr Lys Lys	Val Pro Ala
340	345	350
Ala Pro Ser Asp Glu Ile Tyr	Glu Lys Tyr Lys Ser Pro	Ile Ile Asp
355	360	365
Phe Asp Ile Arg		
370		

<210> 9
 <211> 538
 <212> PRT
 <213> H. influenzae

<220>
 <221> misc_feature
 <223> thiamin ABC transporter, permease protein, putative

<220>
 <221> misc_feature
 <223> gi|1574049

<400> 9

Met	Phe	Ser	Leu	Phe	His	His	Pro	Gln	Leu	Arg	Pro	Arg	His	Tyr	Ala	1	5	10	15
Gly	Gly	Val	Val	Val	Ile	Ser	Phe	Ile	Ile	Leu	Phe	Tyr	Gly	Gly	Ala	20	25	30	
Leu	Ser	Ser	Ile	Phe	Ala	Leu	Gly	Gly	Glu	Leu	Gln	Trp	Arg	Ala	Trp	35	40	45	
Phe	Thr	Asp	Asp	Tyr	Leu	Gln	His	Leu	Ile	Leu	Phe	Ser	Phe	Gly	Gln	50	55	60	
Ala	Leu	Leu	Ser	Thr	Val	Leu	Ser	Ile	Phe	Phe	Gly	Leu	Leu	Leu	Ala	65	70	75	80
Arg	Ala	Leu	Phe	Tyr	Lys	Pro	Phe	Leu	Gly	Lys	Lys	Trp	Leu	Leu	Lys	85	90	95	
Leu	Met	Ser	Leu	Thr	Phe	Val	Leu	Pro	Ala	Leu	Val	Val	Ile	Phe	Gly	100	105	110	
Leu	Ile	Gly	Ile	Tyr	Gly	Ser	Ser	Gly	Trp	Leu	Ala	Trp	Leu	Ala	Asn	115	120	125	
Leu	Phe	Gly	Met	Ser	Trp	Gln	Gly	His	Ile	Tyr	Gly	Leu	Ser	Gly	Ile	130	135	140	
Leu	Ile	Ala	His	Leu	Phe	Phe	Asn	Ile	Pro	Leu	Ala	Ala	Gln	Leu	Phe	145	150	155	160
Leu	Gln	Ser	Leu	Gln	Ser	Ile	Pro	Tyr	Gln	Gln	Arg	Gln	Leu	Ala	Ala	165	170	175	
Gln	Leu	Asn	Leu	Gln	Gly	Trp	Gln	Phe	Val	Lys	Leu	Val	Glu	Trp	Pro	180	185	190	
Val	Phe	Arg	Gln	Gln	Cys	Leu	Pro	Thr	Phe	Ser	Leu	Ile	Phe	Met	Leu	195	200	205	
Cys	Phe	Thr	Ser	Phe	Thr	Val	Val	Leu	Thr	Leu	Gly	Gly	Gly	Pro	Gln	210	215	220	
Tyr	Thr	Thr	Leu	Glu	Thr	Ala	Ile	Tyr	Gln	Ala	Ile	Leu	Phe	Glu	Phe				

225					230					235				240
Asp	Leu	Pro	Lys	Ala	Ala	Leu	Phe	Ala	Met	Leu	Gln	Phe	Val	Phe
				245					250					255
Leu	Ile	Leu	Phe	Ser	Leu	Thr	Ser	Arg	Phe	Ser	Leu	Ser	Asn	Gln
			260					265					270	Asn
Gly	Leu	Ser	Asn	Ser	Asn	Ile	Trp	Phe	Glu	Lys	Pro	Lys	Ser	Ala
		275					280					285		Val
Lys	Ile	Phe	His	Ile	Leu	Val	Leu	Leu	Val	Phe	Val	Phe	Phe	Leu
	290					295					300			Phe
Ser	Pro	Val	Leu	Asn	Ile	Leu	Ile	Ser	Ala	Leu	Ser	Ser	Ser	Asn
305					310					315				Leu
Leu	Thr	Val	Trp	His	Asn	Ser	Gln	Leu	Trp	Arg	Ala	Leu	Gly	Tyr
				325					330					335
Leu	Ser	Ile	Ala	Pro	Leu	Ser	Ala	Leu	Leu	Ala	Leu	Thr	Met	Ala
			340					345					350	Ile
Ala	Leu	Leu	Leu	Leu	Ser	Arg	Arg	Leu	Glu	Trp	Leu	His	Tyr	Gln
		355					360					365		Lys
Ile	Ser	Gln	Phe	Ile	Ile	Asn	Ala	Gly	Met	Val	Ile	Leu	Ala	Ile
	370					375					380			Pro
Ile	Leu	Val	Leu	Ala	Met	Gly	Leu	Phe	Leu	Leu	Leu	Gln	Asp	Arg
385					390				395					400
Phe	Ser	Asn	Ile	Asp	Leu	Phe	Ile	Ile	Val	Val	Phe	Cys	Asn	Ala
				405					410					415
Ser	Ala	Met	Pro	Phe	Val	Leu	Arg	Ile	Leu	Ser	Ala	Pro	Phe	His
			420					425					430	Asn
Asn	Met	Arg	Tyr	Tyr	Glu	Asn	Leu	Cys	Asn	Ser	Leu	Gly	Ile	Val
		435					440					445		Gly
Trp	Gln	Arg	Phe	Tyr	Leu	Ile	Glu	Trp	Lys	Thr	Leu	Arg	Ala	Pro
	450					455					460			Leu
Arg	Tyr	Ala	Phe	Ala	Leu	Gly	Leu	Ala	Leu	Ser	Leu	Gly	Asp	Phe
465					470				475					480
Ala	Ile	Ala	Leu	Phe	Gly	Asn	Gln	Glu	Phe	Thr	Ser	Leu	Pro	His
				485				490						495
Leu	Tyr	Gln	Gln	Leu	Gly	Asn	Tyr	Arg	Asn	Gln	Asp	Ala	Ala	Val
		500						505					510	Thr
Ala	Gly	Ile	Leu	Leu	Leu	Leu	Cys	Gly	Ile	Leu	Phe	Ala	Phe	Ile
		515					520					525		His

Thr Tyr Arg Asp Ala Asp Asp Leu Ser Lys
530 535

<210> 10
<211> 221
<212> PRT
<213> H. influenzae

<220>
<221> misc_feature
<223> heme exporter protein B (ccmB)

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<223> gi|1574645

<400> 10

Met Ile Phe Leu Glu Ile Ile Lys Arg Glu Leu Gln Ile Ala Met Arg
1 5 10 15
Lys Asn Ala Glu Ile Leu Asn Pro Leu Trp Phe Phe Leu Leu Val Ile
20 25 30
Thr Leu Phe Pro Leu Val Ile Gly Pro Asp Pro Lys Leu Leu Ser Arg
35 40 45
Ile Ala Pro Gly Ile Ala Trp Val Ala Ala Leu Leu Ser Ala Leu Leu
50 55 60
Ser Phe Glu Arg Leu Phe Arg Asp Asp Phe Ile Asp Gly Ser Leu Glu
65 70 75 80
Gln Leu Met Leu Thr Ala Gln Pro Leu Pro Met Thr Ala Leu Ala Lys
85 90 95
Val Val Ala His Trp Leu Leu Thr Gly Leu Pro Leu Ile Leu Leu Ser
100 105 110
Pro Ile Ala Ala Leu Leu Leu Ser Leu Glu Val Asn Ile Trp Trp Ala
115 120 125
Leu Val Leu Thr Leu Leu Leu Gly Thr Pro Val Leu Ser Cys Ile Gly
130 135 140
Ala Ile Gly Val Ala Leu Thr Val Gly Leu Arg Lys Gly Gly Val Leu
145 150 155 160
Leu Ser Leu Leu Val Val Pro Leu Phe Ile Pro Val Leu Ile Phe Ala
165 170 175
Ser Ser Val Leu Glu Ala Ala Gly Leu Asn Val Pro Tyr Gly Gly Gln

180 185 190
 Leu Ala Ile Leu Gly Ala Met Met Val Gly Ala Val Thr Leu Ser Pro
 195 200 205

Phe Ala Ile Ala Ala Ala Leu Arg Ile Ser Leu Asp Asn
 210 215 220

<210> 11
 <211> 788
 <212> PRT
 <213> H. influenzae

<220>
 <221> misc_feature
 <223> recombination protein (rec2)

<220>
 <221> misc_feature
 <223> gi|1573009

<400> 11

Met Lys Leu Asn Leu Ile Thr Leu Val Val Leu Leu Ile Val Ala Asp
 1 5 10 15

Leu Thr Leu Leu Phe Leu Pro Gln Pro Leu Leu Leu Pro Trp Gln Val
 20 25 30

Ala Leu Val Ile Ala Leu Val Leu Ile Phe Leu Phe Ile Phe Leu Arg
 35 40 45

Arg Asn Phe Leu Val Ser Leu Ala Phe Phe Val Ala Ser Leu Gly Tyr
 50 55 60

Phe His Tyr Ser Ala Leu Ser Leu Ser Gln Gln Ala Gln Asn Ile Thr
 65 70 75 80

Ala Gln Lys Gln Val Val Thr Phe Lys Ile Gln Glu Ile Leu His Gln
 85 90 95

Gln Asp Tyr Gln Thr Leu Ile Ala Thr Ala Thr Leu Glu Asn Asn Leu
 100 105 110

Gln Glu Gln Arg Ile Phe Leu Asn Trp Lys Ala Lys Glu Val Pro Gln
 115 120 125

Leu Ser Glu Ile Trp Gln Ala Glu Ile Ser Leu Arg Ser Leu Ser Ala
 130 135 140

Arg Leu Asn Phe Gly Gly Phe Asp Arg Gln Gln Trp Tyr Phe Ser Lys
 145 150 155 160

Gly Ile Thr Ala Val Gly Thr Val Lys Ser Ala Val Lys Ile Ala Asp
 165 170 175
 Val Ser Ser Leu Arg Ala Glu Lys Leu Gln Gln Val Lys Lys Gln Thr
 180 185 190
 Glu Gly Leu Ser Leu Gln Gly Leu Leu Ile Ala Leu Ala Phe Gly Glu
 195 200 205
 Arg Ala Trp Leu Asp Lys Thr Thr Trp Ser Ile Tyr Gln Gln Thr Asn
 210 215 220
 Thr Ala His Leu Ile Ala Ile Ser Gly Leu His Ile Gly Leu Ala Met
 225 230 235 240
 Gly Ile Gly Phe Cys Leu Ala Arg Val Val Gln Val Phe Phe Pro Thr
 245 250 255
 Arg Phe Ile His Pro Tyr Phe Pro Leu Val Phe Gly Val Leu Phe Ala
 260 265 270
 Leu Ile Tyr Ala Tyr Leu Ala Gly Phe Ser Val Pro Thr Phe Arg Ala
 275 280 285
 Ile Ser Ala Leu Val Phe Val Leu Phe Ile Gln Ile Met Arg Arg His
 290 295 300
 Tyr Ser Pro Ile Gln Phe Phe Thr Leu Val Val Gly Phe Leu Leu Phe
 305 310 315 320
 Cys Asp Pro Leu Met Pro Leu Ser Val Ser Phe Trp Leu Ser Cys Gly
 325 330 335
 Ala Val Gly Cys Leu Leu Leu Trp Tyr Arg Tyr Val Pro Phe Ser Leu
 340 345 350
 Phe Gln Trp Lys Asn Arg Pro Phe Ser Pro Lys Val Arg Trp Ile Phe
 355 360 365
 Ser Leu Phe His Leu Gln Phe Gly Leu Leu Leu Phe Phe Thr Pro Leu
 370 375 380
 Gln Leu Phe Leu Phe Asn Gly Leu Ser Leu Ser Gly Phe Leu Ala Asn
 385 390 395 400
 Phe Met Ala Val Pro Ile Tyr Ser Phe Leu Leu Val Pro Leu Ile Leu
 405 410 415
 Phe Ala Val Phe Thr Asn Gly Thr Met Phe Ser Trp Gln Leu Ala Asn
 420 425 430
 Lys Leu Ala Glu Gly Ile Thr Gly Leu Ile Ser Val Phe Gln Gly Asn
 435 440 445
 Trp Leu Thr Val Ser Phe Asn Leu Ala Leu Gly Leu Thr Ala Leu Cys

450	455	460
Ala Gly Ile Phe Met Leu Ile Ile Trp Asn Ile Tyr Arg Glu Pro Glu		
465	470	475 480
Ile Ser Ser Ser Asn Trp Gln Ile Lys Arg Ala Lys Phe Phe Thr Leu		
	485	490 495
Asn Leu Ser Lys Pro Leu Leu Lys Asn Glu Arg Ile Asn Val Leu Arg		
	500	505 510
Cys Ser Phe Gly Ile Ile Leu Leu Cys Phe Thr Ile Leu Leu Phe Lys		
	515	520 525
Gln Leu Ser Lys Pro Thr Trp Gln Val Asp Thr Leu Asp Val Gly Gln		
	530	535 540
Gly Leu Ala Thr Leu Ile Val Lys Asn Gly Lys Gly Ile Leu Tyr Asp		
545	550	555 560
Thr Gly Ser Ser Trp Arg Gly Gly Ser Met Ala Glu Leu Glu Ile Leu		
	565	570 575
Pro Tyr Leu Gln Arg Glu Gly Ile Val Leu Glu Lys Leu Ile Leu Ser		
	580	585 590
His Asp Asp Asn Asp His Ala Gly Gly Ala Ser Thr Ile Leu Lys Ala		
	595	600 605
Tyr Pro Asn Val Glu Leu Ile Thr Pro Ser Arg Lys Asn Tyr Gly Glu		
	610	615 620
Asn Tyr Arg Thr Phe Cys Thr Ala Gly Arg Asp Trp His Trp Gln Gly		
625	630	635 640
Leu His Phe Gln Ile Leu Ser Pro His Asn Val Val Thr Arg Ala Asp		
	645	650 655
Asn Ser His Ser Cys Val Ile Leu Val Asp Asp Gly Lys Asn Ser Val		
	660	665 670
Leu Leu Thr Gly Asp Ala Glu Ala Lys Asn Glu Gln Ile Phe Ala Arg		
	675	680 685
Thr Leu Gly Lys Ile Asp Val Leu Gln Val Gly His His Gly Ser Lys		
	690	695 700
Thr Ser Thr Ser Glu Tyr Leu Leu Ser Gln Val Arg Pro Asp Val Ala		
705	710	715 720
Ile Ile Ser Ser Gly Arg Trp Asn Pro Trp Lys Phe Pro His Tyr Ser		
	725	730 735
Val Met Glu Arg Leu His Arg Tyr Lys Ser Ala Val Glu Asn Thr Ala		
	740	745 750

Val Ser Gly Gln Val Arg Val Asn Phe Phe Gln Asp Arg Leu Glu Ile
755 760 765

Gln Gln Ala Arg Thr Lys Phe Ser Pro Trp Tyr Ala Arg Val Ile Gly
770 775 780

Leu Ser Lys Glu
785

<210> 12
<211> 505
<212> PRT
<213> H. pylori

<220>
<221> misc_feature
<223> poly E-rich protein

<220>
<221> misc_feature
<223> gi|2313421

<400> 12

Met Lys Met Ile Leu Phe Asn Gln Asn Pro Met Ile Thr Lys Leu Leu
1 5 10 15

Glu Ser Val Ser Lys Lys Leu Glu Leu Pro Ile Glu Asn Phe Asn His
20 25 30

Tyr Gln Glu Leu Ser Ala Arg Leu Lys Glu Asn Gln Glu Trp Leu Leu
35 40 45

Ile Ala Asp Asp Glu Cys Leu Glu Lys Leu Asp Gln Val Asp Trp Leu
50 55 60

Glu Leu Lys Glu Thr Ile Ser Gln Asn Lys Asn Ser Val Cys Met Tyr
65 70 75 80

Lys Lys Gly Asn Glu Ala Gln Pro Phe Leu Glu Gly Phe Glu Val Lys
85 90 95

Ile Lys Lys Pro Phe Leu Pro Thr Glu Met Leu Lys Val Leu Gln Lys
100 105 110

Lys Leu Gly Ser Asn Ala Ser Glu Leu Glu Pro Ser Gln Asn Leu Asp
115 120 125

Pro Thr Gln Glu Val Leu Glu Thr Asn Trp Asp Glu Leu Glu Asn Leu
130 135 140

Gly Asp Leu Glu Ala Leu Val Gln Glu Glu Pro Asn Asn Glu Glu Gln

145 150 155 160
 Leu Leu Pro Thr Leu Asn Asp Gln Glu Glu Lys Glu Glu Val Lys Glu
 165 170 175
 Glu Glu Lys Glu Glu Val Lys Glu Glu Glu Lys Glu Glu Val Lys Glu
 180 185 190
 Glu Glu Lys Glu Glu Val Lys Glu Thr Pro Gln Glu Glu Lys Lys Pro
 195 200 205
 Lys Asp Asp Glu Thr Gln Glu Gly Glu Thr Leu Lys Asp Lys Glu Val
 210 215 220
 Ser Lys Glu Leu Glu Ala Pro Gln Glu Leu Glu Ile Pro Lys Glu Glu
 225 230 235 240
 Thr Gln Glu Gln Asp Pro Ile Lys Glu Glu Thr Gln Glu Asn Lys Glu
 245 250 255
 Glu Lys Gln Glu Lys Thr Gln Asp Ser Pro Ser Ala Gln Glu Leu Glu
 260 265 270
 Ala Met Gln Glu Leu Val Lys Glu Ile Gln Glu Asn Ser Asn Gly Gln
 275 280 285
 Glu Asn Lys Glu Lys Thr Gln Glu Ser Ala Glu Ile Pro Gln Asp Lys
 290 295 300
 Glu Ile Gln Glu Val Val Thr Glu Lys Thr Gln Ala Gln Glu Leu Glu
 305 310 315 320
 Val Pro Lys Glu Lys Thr Gln Glu Ser Ala Glu Ala Leu Gln Glu Thr
 325 330 335
 Gln Ala His Glu Leu Glu Lys Gln Glu Ile Ala Glu Thr Pro Gln Asp
 340 345 350
 Val Glu Ile Pro Gln Ser Gln Asp Lys Glu Val Gln Glu Leu Glu Ile
 355 360 365
 Pro Lys Glu Glu Thr Gln Glu Asn Thr Glu Thr Pro Gln Asp Val Glu
 370 375 380
 Thr Pro Gln Glu Lys Glu Thr Gln Glu Asp His Tyr Glu Ser Ile Glu
 385 390 395 400
 Asp Ile Pro Glu Pro Val Met Ala Lys Ala Met Gly Glu Glu Leu Pro
 405 410 415
 Phe Leu Asn Glu Ala Val Ala Lys Ile Pro Asn Asn Glu Asn Asp Thr
 420 425 430
 Glu Thr Pro Lys Glu Ser Val Thr Glu Thr Ser Lys Asn Glu Asn Asn
 435 440 445

Thr Glu Thr Pro Gln Glu Lys Glu Glu Ser Asp Lys Thr Ser Ser Pro
 450 455 460

Leu Glu Leu Arg Leu Asn Leu Gln Asp Leu Leu Lys Ser Leu Asn Gln
 465 470 475 480

Glu Ser Leu Lys Ser Leu Leu Glu Asn Lys Thr Leu Ser Ile Lys Ile
 485 490 495

Thr Leu Glu Asp Lys Lys Pro Asn Ala
 500 505

<210> 13
 <211> 60
 <212> PRT
 <213> H. pylori

<220>
 <221> misc_feature
 <223> histidine-rich, metal binding polypeptide (hpn)

<220>
 <221> misc_feature
 <223> gi|2314604

<400> 13

Met Ala His His Glu Glu Gln His Gly Gly His His His His His His
 1 5 10 15

His Thr His His His His Tyr His Gly Gly Glu His His His His His
 20 25 30

His Ser Ser His His Glu Glu Gly Cys Cys Ser Thr Ser Asp Ser His
 35 40 45

His Gln Glu Glu Gly Cys Cys His Gly His His Glu
 50 55 60

<210> 14
 <211> 72
 <212> PRT
 <213> H. pylori

<220>
 <221> misc_feature
 <223> histidine and glutamine-rich protein

<220>
 <221> misc_feature
 <223> gi|2314605

<400> 14

Met Ala His His Glu Gln Gln Gln Gln Gln Gln Ala Asn Ser Gln His
1 5 10 15
His His His His His Ala His His His His Tyr Tyr Gly Gly Glu His
20 25 30
His His His Asn Ala Gln Gln His Ala Glu Gln Gln Ala Glu Gln Gln
35 40 45
Ala Gln Gln Gln Gln Gln Gln Gln Ala His Gln Gln Gln Gln Gln Lys
50 55 60
Ala Gln Gln Gln Asn Gln Gln Tyr
65 70

<210> 15

<211> 1139

<212> PRT

<213> M. genitalium

<220>

<221> misc_feature

<223> cytoadherence-accessory protein

<220>

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<223> gi|1046012

<400> 15

Met Ala Lys Asn Lys Gln Ser Val Phe Glu Glu Lys Asn Tyr Thr Gln
1 5 10 15
Thr Glu Pro Glu Asn Ile Phe Gly Asp Leu Tyr Asp Gly Lys Ser Thr
20 25 30
Val Glu Glu Asp Pro Asn Ile Lys Val Ala Tyr Asp Ala Asp Gly Asn
35 40 45
Gly Tyr Tyr Ile Ala Phe Asn Lys Glu Thr Gly Val Tyr Tyr Asp Pro
50 55 60
Tyr Gly Asp Thr Glu Tyr Asp Ile Ser Gln Leu Phe Asp Glu Asn Gly
65 70 75 80
Asn Pro Phe Val Phe Asp Glu Lys Gln Glu Glu Asn Asp Tyr Leu Lys
85 90 95
Tyr Val Gly Asn Pro Asp Tyr Gly Ser Tyr Asp Glu Asn Gly Glu Trp

100					105					110						
Val	Trp	Ser	Gly	Tyr	Phe	Glu	Asn	Asp	Gln	Trp	Ile	Ser	Thr	Lys	Glu	
115					120					125						
Ser	Gln	Pro	Thr	Asp	Glu	Asn	Tyr	Gly	Phe	Asp	Ser	Asp	Leu	Pro	Pro	
130					135					140						
Glu	Val	Lys	Gln	Pro	Glu	Ser	Val	Glu	Asp	Asn	Tyr	Gly	Phe	Asp	Asn	
145					150					155					160	
Asp	Leu	Pro	Pro	Glu	Val	Lys	Gln	Pro	Glu	Ser	Val	Glu	Asp	Asn	Tyr	
165					170					175						
Gly	Phe	Asp	Asn	Asp	Leu	Pro	Pro	Glu	Val	Lys	Gln	Pro	Glu	Ser	Val	
180					185					190						
Val	Asp	Gln	Pro	Ser	Ser	Asp	Asp	Tyr	Phe	Ala	Lys	Gln	Pro	Thr	Asp	
195					200					205						
Glu	Asn	Tyr	Gly	Phe	Asp	Asn	Asp	Leu	Pro	Pro	Glu	Val	Lys	Gln	Pro	
210					215					220						
Glu	Ser	Val	Val	Asp	Gln	Pro	Ser	Ser	Asp	Asp	His	Phe	Ala	Lys	Gln	
225					230					235					240	
Pro	Glu	Ser	Thr	Thr	Asp	Ser	Tyr	Ser	Phe	Asp	Ser	Asp	Leu	Pro	Gln	
245					250					255						
Pro	Thr	Leu	Asp	Gln	Pro	Ser	Leu	Asp	Asp	His	Val	Gln	Tyr	Asn	Phe	
260					265					270						
Asp	His	His	Glu	Glu	Leu	Lys	Pro	Val	Ala	Glu	Glu	Gln	Asn	Asn	Tyr	
275					280					285						
Gln	Val	Gly	Phe	Asp	Gln	Val	Gln	Ala	Asn	Leu	Asp	Asn	Asn	Glu	Glu	
290					295					300						
Ile	Gln	Pro	Thr	Ala	Glu	Lys	Lys	Val	Thr	Thr	Asp	Phe	Glu	Ser	Lys	
305					310					315					320	
Gln	Ala	Gln	Val	Val	Asp	Ser	Tyr	Gln	Leu	Pro	Ile	Asp	Thr	Asp	Gln	
325					330					335						
Gln	Asp	Gln	Thr	Thr	Phe	Ser	Ser	Ser	Phe	Glu	Thr	Gln	Pro	Thr	Val	
340					345					350						
Glu	Gln	Phe	Asp	Gln	Val	Asn	Ser	Glu	Val	Asn	Asp	Gln	Phe	Lys	Pro	
355					360					365						
Glu	Ile	Thr	Lys	Glu	Pro	Val	Leu	Glu	Ser	Ser	Phe	Asn	Lys	Gln	Asp	
370					375					380						
Val	Val	Glu	Thr	Ser	Asp	Leu	Asn	Ser	Glu	Ser	Asn	Leu	Tyr	Ser	Glu	
385					390					395					400	

Asn Asn Lys Asp Ala Thr Asn Asn Asp Ser Leu Asn Ser Glu Phe Ile
405 410 415

Gln Leu Asn Ser Asn Ser Glu Thr Ala Ser Asp Asp Val His Tyr Glu
420 425 430

Ser Lys Ser Glu Pro Ile His Asp Tyr Lys Phe Gly Ser Asp Leu Ser
435 440 445

Gln Ser Asn Ser Asn Asn Ser Leu Glu Ser Glu Pro Val Lys Phe Asn
450 455 460

Ser Glu Thr Ala Pro Asp Ala His Phe Glu Ser Gln Ser Glu Pro Val
465 470 475 480

Asp Gln Val Gln Tyr Asp Ile Tyr Gln Asn Glu Glu Leu Lys Pro Thr
485 490 495

Leu Asp Gln Pro Ser Ser Asp Asp Tyr Phe Ala Lys Gln Pro Thr Asp
500 505 510

Glu Asn Tyr Gly Phe Asp Asn Asp Leu Pro Pro Glu Val Lys Gln Pro
515 520 525

Glu Ser Val Val Asp Gln Pro Ser Ser Asp Asp His Phe Ala Lys Gln
530 535 540

Pro Glu Ser Thr Thr Asp Ser Tyr Ser Phe Asp Ser Asp Leu Pro Gln
545 550 555 560

Pro Thr Leu Asp Gln Pro Ser Leu Asp Asp His Val Gln Tyr Asn Phe
565 570 575

Asp His His Glu Glu Leu Lys Pro Val Ala Glu Glu Gln Asn Asn Tyr
580 585 590

Gln Val Gly Phe Asp Gln Val Gln Ala Asn Leu Asp Asn Asn Glu Glu
595 600 605

Ile Gln Pro Thr Ala Glu Lys Glu Val Thr Thr Asp Phe Glu Ser Lys
610 615 620

Gln Ala Gln Val Val Asp Ser Tyr Gln Leu Pro Ile Asp Thr Asp Gln
625 630 635 640

Gln Asp Gln Thr Thr Phe Ser Ser Ser Phe Glu Thr Gln Pro Thr Val
645 650 655

Glu Gln Phe Asp Gln Val Asn Ser Glu Val Asn Asp Gln Phe Lys Pro
660 665 670

Glu Ile Thr Lys Glu Pro Val Leu Glu Ser Ser Phe Asn Lys Gln Asp
675 680 685

Val	Val	Glu	Thr	Ser	Asn	Tyr	Thr	Asn	Asn	Leu	Gln	Lys	Phe	Asp	Ile		
	690					695					700						
Gln	Ser	Asp	Asn	Lys	Ile	Thr	Ile	Thr	Thr	Lys	Lys	Ser	Ser	Pro	Gln		
705					710					715					720		
Ile	Pro	Thr	Thr	Leu	Pro	Ile	Ser	Phe	Val	Ser	Asn	Arg	Ile	Glu	Tyr		
				725					730					735			
Lys	Pro	Val	Glu	Thr	Leu	Ala	Leu	Asp	Asn	Lys	Glu	Ser	Gln	Gln	Glu		
			740					745					750				
Gln	Ile	Thr	Ile	Asn	Ser	Ile	Thr	Glu	Asp	Ser	Lys	Thr	Leu	Ala	Lys		
		755					760					765					
Thr	Leu	Ser	Val	Gln	Leu	Gln	Gln	Ile	Asn	Ser	Leu	Asn	Asn	Gln	Ser		
	770					775					780						
Ile	Val	Thr	Ser	Glu	Ser	Val	Arg	Leu	Asp	Lys	Lys	Asp	Asp	Gln	Leu		
785					790					795					800		
Thr	Ile	Asn	Thr	Val	Asn	Ser	Glu	Asp	Gln	Gln	Pro	Lys	Ile	Glu	Val		
				805					810					815			
Phe	Val	Lys	Ala	Lys	Glu	Pro	Val	Glu	Glu	His	Ser	Ile	Thr	Gln	Asn		
			820					825					830				
Lys	Gln	Ser	Val	Glu	Asp	Lys	Ser	Glu	Leu	Asp	Asn	Phe	Asn	Lys	Lys		
		835					840					845					
Ser	Asp	Leu	Tyr	Lys	Ile	Ile	Ser	Glu	Leu	Lys	Arg	Gly	Glu	Leu	Asn		
	850					855					860						
Pro	Thr	Ile	Asn	Phe	Asp	Ala	Ile	Phe	Gln	Met	Asn	Asp	Tyr	Gln	Met		
865					870					875					880		
Ser	Val	Lys	Gln	Ser	Phe	Ile	His	Leu	Asn	Asp	Phe	Val	Thr	Asn	Tyr		
				885					890					895			
Lys	Asn	Gln	Ile	Ser	Glu	Arg	Tyr	Leu	Ile	Ile	Lys	Lys	Glu	Leu	Gln		
			900					905					910				
Ser	Glu	Leu	Ser	Arg	Leu	Ile	Asp	Gln	Asn	Glu	Asn	Leu	Asn	Val	Gln		
	915						920					925					
Phe	Asn	Asn	Ala	Lys	Asn	Leu	Thr	Thr	Leu	Gln	Lys	Glu	Glu	Met	Ile		
	930					935					940						
Arg	Ser	Leu	Ala	Ser	Asp	Phe	Ala	Ile	Ala	Tyr	Lys	Pro	Ser	Asn	Ser		
945					950					955					960		
Tyr	Glu	Gln	Leu	Gln	Lys	Ser	Gly	Glu	Ile	Met	Arg	His	Val	Gln	Arg		
			965					970						975			
Ala	Ile	Thr	Glu	Asn	Glu	Lys	Lys	Ile	Glu	Ser	Ile	Gln	Gly	Ser	Leu		

980

985

990

Lys Gln Leu Lys Thr Val Tyr Asn Ser Cys Cys Glu Thr Ile Met Asn
 995 1000 1005

Asn Ile Asn Lys Leu Asp Asn Thr Leu Arg Phe Ala Lys Lys Glu
 1010 1015 1020

Lys Asp Pro Leu Leu Leu Ser Asn Phe Asp Ser Val Thr Asp Asn
 1025 1030 1035

Gly Leu Val Glu Pro Asn Gln Leu Met Asp Asp Leu Ile Asp Phe
 1040 1045 1050

Ser Asn Thr Phe Asp Asn Ile Ser Asn Glu Gln Leu Asp Asp Phe
 1055 1060 1065

Ile Tyr Glu Asn Met Asp Arg Asn Ile Asp Phe Glu Phe Glu Gly
 1070 1075 1080

Phe Asn Asn Asp Phe Val Asp Ile Asp Ala Lys Val Met Asp Ser
 1085 1090 1095

Met Ser Ala Phe Ser Val Asn Asp Leu Asp Ile Glu Thr Leu Val
 1100 1105 1110

Pro Asp Arg Thr Ser Asn Phe Ser Ser Leu Leu Asp Glu Asp Leu
 1115 1120 1125

Phe Glu Ser Ser Gly Asp Phe Ser Leu Asp Tyr
 1130 1135

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<212> PRT

<213> M. genitalium

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<223> cytoadherence-accessory protein

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<223> gi|1046097

<400> 16

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 1 5 10 15

Lys Thr Lys Lys Tyr Leu Glu Ser Ala Asn Lys Lys Ser Val Thr Lys
 20 25 30

Pro Lys Lys Glu Gln Asp Lys Val Glu Asn Leu Phe Asp Gln Pro Phe
35 40 45

Leu Gly Glu Ile Lys Lys Asn Ile Leu Lys Lys Thr Lys Ser Phe Asn
50 55 60

Ser Lys Lys Lys Glu Thr Val Lys Ser Lys Ser Lys Ser Pro Ile Asp
65 70 75 80

Phe Phe Asp Glu Thr Lys Arg Gly Val Phe Ile Val Pro Pro Glu Thr
85 90 95

Asp Ile Leu Ser Arg Arg Glu Leu Asn Gln Lys Thr Val Val Asn Thr
100 105 110

Val Pro Asn Gln Thr Ser Ser Tyr Pro Thr Ile Asn Glu Asn Lys Leu
115 120 125

Val Glu Leu Asn Asn Gln Pro Glu Thr Lys Val Leu Glu Thr Lys Lys
130 135 140

Asp Ser Phe Thr Thr Thr Ile Arg Glu Lys Lys Leu Asn Pro Glu Asp
145 150 155 160

Ser Gln Ala Phe Trp Tyr Ile Phe Val Gly Asp Arg Lys Tyr Gly Phe
165 170 175

Trp Lys Asn His Thr Trp Val Trp Leu Gly Tyr Phe Asp Gln Leu Gln
180 185 190

Arg Trp Asn Tyr Phe Lys Val Ile Glu Thr Val Glu Val Pro Gln Glu
195 200 205

His Ala Ala Phe Ile Lys Gln Arg Pro Ala Asp Ile Asp Phe Trp Arg
210 215 220

Pro Leu Val Gly Asn Pro Asn Tyr Gly Phe Val Gln Asn Asn Thr Trp
225 230 235 240

Ile Trp Lys Gly Phe Phe Asp Lys Lys Leu Asn Trp Ile Pro Asp Pro
245 250 255

Val Arg Phe Thr Glu Glu Ala Leu Gly His Thr Asp Ser Leu Val Asp
260 265 270

Glu Ile Glu Lys Lys Thr Ile Ser Glu Gln Pro Tyr Trp Glu Gln Glu
275 280 285

Asn Asp Ile Val Val Thr Val Phe Asn Thr Lys Ser Leu Ala Ser Ser
290 295 300

Leu Glu Asn Glu Leu Leu Leu Glu Asn Ser Ser Glu Glu Gln Pro Val
305 310 315 320

Ile Glu Glu Val Lys Pro Arg Arg Asn Glu Val Ile Phe Arg Asn Pro

325										330					335				
Val	Thr	Lys	Leu	His	Phe	Glu	Lys	Glu	Lys	Phe	Glu	Phe	Leu	Asn	Pro				
			340					345					350						
Val	Lys	Glu	Thr	Asn	Glu	Thr	Ile	Pro	Leu	Ile	Glu	Ile	Val	Lys	Glu				
		355					360					365							
Glu	Val	Lys	Val	Glu	Ser	Glu	Val	Glu	Ala	Pro	Val	Glu	Ile	Glu	Pro				
	370					375					380								
Glu	Ala	Ala	Cys	Glu	Pro	Glu	Thr	Thr	Ile	Pro	Glu	Val	Glu	Thr	Val				
385					390					395					400				
Phe	Val	Tyr	Glu	Asp	Asp	Leu	Lys	Gly	Leu	Asp	Ser	Asn	Gln	Thr	Gln				
				405					410					415					
Ala	Gly	Asn	Val	Pro	Glu	Val	Glu	Thr	Val	Phe	Val	Tyr	Glu	Asp	Asp				
			420					425					430						
Leu	Lys	Gly	Leu	Asp	Ser	Ile	Ile	Lys	Asp	Asp	Gln	Gln	His	Asp	Glu				
		435					440					445							
Ile	Ala	Lys	His	Val	Glu	His	Leu	Ser	Gln	Asp	Tyr	Ser	Lys	Glu	Ile				
	450					455					460								
Lys	Asp	Ser	Ala	Lys	Ala	Asp	Leu	Ser	Asn	Ile	Ser	Asp	Asp	Ile	Asp				
465					470					475					480				
Ser	Val	Trp	Lys	Glu	Phe	Gly	Ser	Phe	Thr	Asp	Glu	Thr	Gln	Lys	Ser				
			485						490					495					
Val	Glu	Glu	Lys	Ser	Gln	Val	Asp	Glu	Ile	Ile	Leu	Asp	Ala	Asn	Asn				
			500					505					510						
Asp	Phe	Ile	Asn	Glu	Ser	Leu	Phe	Arg	Asp	Glu	Val	Val	Asn	Asn	Ile				
	515						520					525							
Asp	Ser	Gln	Ile	Asn	Glu	Thr	Val	Ser	Glu	Gln	Gln	Phe	Glu	Pro	Thr				
	530					535					540								
Tyr	Ser	Val	Asn	Glu	Phe	Gln	Gln	Glu	Phe	Ser	Glu	Pro	Val	Val	Ser				
545				550					555						560				
Asp	Glu	Lys	Ile	Lys	Glu	Thr	Asn	Ser	Asp	Glu	Ser	Val	Asn	Thr	Asp				
			565						570					575					
Leu	Thr	Ala	Leu	Phe	Ser	Glu	Lys	Leu	Val	Asn	Glu	Val	Leu	Leu	Thr				
		580						585					590						
Asn	Glu	Tyr	Val	Asp	Val	Asn	Ala	Pro	Phe	Ser	Thr	Glu	Thr	Glu	Val				
	595						600					605							
Lys	Val	Ser	Ser	Glu	Leu	Pro	Lys	Ser	Glu	Leu	Val	Asp	Glu	Ile	Thr				
	610					615					620								

Phe Ile Asn Asn Asp Pro Lys Pro Gln Glu Gly Leu Glu Tyr Lys Val
625 630 635 640
Asp Phe Leu Glu Thr Glu Pro Lys Ser Leu Phe Asp Glu Lys Thr Thr
645 650 655
Ile Val Val Glu Ser Glu Pro Pro Phe Ile Gln Pro Asp Leu Ser Leu
660 665 670
Glu Leu Asp Ser Val Asn Asp Val Asp Lys Ser Leu Glu Thr Lys Thr
675 680 685
Thr Ser Val Glu Leu Asn His Glu Glu Ile Gly Asn Glu Phe Ile Asn
690 695 700
Leu Asp Val Ser Glu Lys Glu Val Gln Glu Gln Pro Thr Thr Gln Leu
705 710 715 720
Glu Thr Asp Ser Glu Phe Val Leu Pro Thr Tyr Gln Ile Val Glu Asp
725 730 735
Ser Phe Thr Glu Ser Ala Glu Thr Pro Asn Glu Phe Ser Ser Glu Gln
740 745 750
Lys Asp Thr Leu Glu Phe Ile Ser Gln Thr Gln Glu Val Glu Thr Ser
755 760 765
Glu Ser Asn Val Pro Thr Val Glu Gln Glu Thr Lys Leu Phe Glu His
770 775 780
Gln Asp Glu Asn Asn Leu Phe Thr Pro Leu Pro Leu Asp Leu Thr Glu
785 790 795 800
Ile Ile Glu Ser Asn Ala Leu Phe Asp Ser Lys Pro Asp Glu Lys Glu
805 810 815
Ser Ser Asp Ser Glu Leu Gln Pro Thr Phe Lys Glu Ile Lys Leu Asp
820 825 830
Ser Thr Val Glu Val Pro Gln Glu Ser Ser Gln Val Glu Ala Thr Phe
835 840 845
Asp Thr Val Gln Pro Glu Ala Val Phe Asp Glu Ile Lys Thr Gln Glu
850 855 860
Leu Gln Pro Glu Ala Thr Thr Glu Val Val Phe Asp Asp His Phe Gln
865 870 875 880
Pro Asp Val Gln Pro Glu Gln Thr Pro Gln Glu Ala Lys Phe Asp Ser
885 890 895
Pro Val Glu Ile Pro Gln Glu Ser Ser Gln Ala Glu Phe His Ala Glu
900 905 910

Gln Ile Ser Asp Glu Ile Lys Leu Glu Glu Lys Thr Glu Ala Val Phe
 915 920 925
 Asp His Gln Gln Leu Glu Asn Gln Ser Glu Glu Thr Val Val Thr Pro
 930 935 940
 Thr Glu Val Thr Ala Phe Glu Pro Glu Thr Ile Glu Thr Gln Leu Glu
 945 950 955 960
 Pro Ser Ser Glu Asp Gln Pro Ser Glu Pro Ala Leu Asp Gln Asn His
 965 970 975
 Pro Glu Ile Val Thr Ala Glu Val Glu Gln Ile Phe Asp Gly Thr Lys
 980 985 990
 Leu Glu Asp Leu Lys Leu Glu Glu Ala Asn Phe Asp Asn Val Glu Asn
 995 1000 1005
 Asn Glu Val Gln Pro Lys Glu Thr Glu Ala Glu Ile Thr Phe Asp
 1010 1015 1020
 Glu Thr Lys Glu Leu Gln Gln Glu Thr Ser Ser Glu Pro Leu Ser
 1025 1030 1035
 Thr Glu Glu Leu Lys Ser Glu Ala Thr Phe Asp Asn Val Ser Glu
 1040 1045 1050
 Ala Glu Ser Glu Ala Val Phe Glu Lys Pro Gln Leu Glu Thr Gln
 1055 1060 1065
 Thr Glu Lys Ile Leu Glu Glu Glu Pro Lys Ser Glu Pro Val Asp
 1070 1075 1080
 Gln Leu Ile Thr Glu Ala Ser Phe Asp Thr Val Lys His Glu Ala
 1085 1090 1095
 Val Phe Asp Lys Asn Gln Thr Gln Thr Glu Gly Leu Glu Glu Pro
 1100 1105 1110
 Gln Val Ser Ser Glu Ala Glu Val Val Asp Gln Thr Thr Thr Asp
 1115 1120 1125
 Thr Val Gly Glu Pro Glu Ala Val Phe Asp Val Gln Pro Glu Lys
 1130 1135 1140
 Thr Thr Glu Val Lys Phe Asp Asp Val Glu Asn Gln Gln Lys Val
 1145 1150 1155
 Ile Ser Glu Pro Gln Val Glu Gln Gln Pro Gly Glu Ala Val Phe
 1160 1165 1170
 Glu Pro Ser Ala Glu Ala Lys Phe Asp Ser Pro Val Glu Ser Val
 1175 1180 1185
 Gln Asp Ser Gln Pro Glu Pro Val Leu Glu Glu Val Gln Thr Gln

1190	1195	1200
Pro Glu Ile Gln Pro Val	Glu Ser Gln Pro Glu	Ala Thr Phe Asp
1205	1210	1215
Thr Val Gln Pro Glu Gln	Thr Pro Gln Glu Ala	Lys Phe Asp Ser
1220	1225	1230
Pro Val Glu Thr Val Glu	Gln Pro Glu Phe Ser	Ser Glu Pro Thr
1235	1240	1245
Gln Gln His Val Glu Ser	Glu Ala Ser Phe Asp	Glu Pro Asn Tyr
1250	1255	1260
Asp Phe Asp Glu Pro Asn	Tyr Asp Phe Asp Gln	Pro Ser Tyr Asp
1265	1270	1275
Ser Asp Leu Gln Pro Ser	Glu Pro Gln Tyr Asp	Val Asp Glu Pro
1280	1285	1290
Asn Tyr Asp Phe Asp Glu	Pro Asn Tyr Glu Ile	Glu Ser Lys Pro
1295	1300	1305
Ser Glu Pro Gln Phe Glu	Pro Gln Val Glu Gln	Gln Pro Gly Glu
1310	1315	1320
Ala Val Phe Glu Pro Ser	Ala Glu Ala Lys Phe	Asp Ser Pro Val
1325	1330	1335
Glu Ser Val Gln Asp Ser	Gln Pro Glu Pro Leu	Leu Glu Glu Val
1340	1345	1350
Gln Thr Gln Pro Glu Ile	Gln Pro Val Glu Ser	Gln Pro Glu Ala
1355	1360	1365
Thr Phe Asp Thr Val Gln	Pro Glu Gln Thr Pro	Gln Glu Ala Lys
1370	1375	1380
Phe Asp Ser Pro Val Glu	Thr Ile Gln Glu Pro	Gln Val Ser Ser
1385	1390	1395
Glu Pro Glu Val Val Val	Gln Pro Asn Phe Glu	Glu Arg Lys Pro
1400	1405	1410
Glu Thr Val Leu Glu Glu	Pro Gln Ala Asp Glu	Ile Gln Pro Glu
1415	1420	1425
Ala Ser Glu Glu Glu Ser	Leu Asp Trp Glu Leu	Leu Val Gly Asn
1430	1435	1440
Asn Ser Tyr Gly His Tyr	Glu Pro Asp Gly Glu	Trp Val Trp Ala
1445	1450	1455
Gly Phe Phe Gly Asp Asp	Gln Lys Trp Asn Lys	Asp Ala Thr Val
1460	1465	1470

Lys Trp Ala Arg Glu Arg Asp Tyr Leu Pro Leu Ile Gly Asp Glu
1475 1480 1485

Val Tyr Gly Arg Tyr Asn Asn Lys Gly Glu Trp Ile Trp Tyr Gly
1490 1495 1500

Phe Tyr Asp Glu Ser Gly Asp Trp Val Leu Val Asp Glu Gln Trp
1505 1510 1515

Lys Asn Arg Gln Pro Arg Ile Asn Glu Ala Pro Lys Phe Trp Glu
1520 1525 1530

Lys Leu Ile Gly Asn Glu Glu Tyr Gly Tyr Tyr Glu Asp Asn Glu
1535 1540 1545

Trp Asn Trp Tyr Asp Gly Glu Phe Asp Ser Glu Gly Asn Trp Leu
1550 1555 1560

Val Phe Gln Ser Glu Glu Thr Glu Asn Leu Asn Glu Asp Ile Thr
1565 1570 1575

Lys Asp Ile Pro Ala Leu Glu Gly Tyr Asp Ile Asp Ser Ile Asp
1580 1585 1590

Ala Asp Glu Trp Leu Ser Gln Phe Ser Ala Asp Asp Ala Lys Asp
1595 1600 1605

Val Phe Gly Ser Asn Asp Lys Lys
1610 1615

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<211> 274

<212> PRT

<213> M. pneumoniae

<220>

<221> misc_feature

<223> 30K adhesin-related protein

<220>

<221> misc_feature

<223> gi|1674069

<400> 17

Met Lys Leu Pro Pro Arg Arg Lys Leu Lys Leu Phe Leu Leu Ala Trp
1 5 10 15

Met Leu Val Leu Phe Ser Ala Leu Ile Val Leu Ala Thr Leu Ile Leu
20 25 30

Val Gln His Asn Asn Thr Glu Leu Thr Glu Val Lys Ser Glu Leu Ser

35					40					45					
Pro	Leu	Asn	Val	Val	Leu	His	Ala	Glu	Glu	Asp	Thr	Val	Gln	Ile	Gln
50						55					60				
Gly	Lys	Pro	Ile	Thr	Glu	Gln	Ala	Trp	Phe	Ile	Pro	Thr	Val	Ala	Gly
65					70					75					80
Cys	Phe	Gly	Phe	Ser	Ala	Leu	Ala	Ile	Ile	Leu	Gly	Leu	Ala	Ile	Gly
				85					90					95	
Leu	Pro	Ile	Val	Lys	Arg	Lys	Glu	Lys	Arg	Leu	Leu	Glu	Glu	Lys	Glu
			100					105					110		
Arg	Gln	Glu	Gln	Leu	Ala	Glu	Gln	Leu	Gln	Arg	Ile	Ser	Ala	Gln	Gln
		115					120					125			
Glu	Glu	Gln	Gln	Ala	Leu	Glu	Gln	Gln	Ala	Ala	Ala	Glu	Ala	His	Ala
	130					135					140				
Glu	Ala	Glu	Val	Glu	Pro	Ala	Pro	Gln	Pro	Val	Pro	Val	Pro	Pro	Gln
145					150					155					160
Pro	Gln	Val	Gln	Ile	Asn	Phe	Gly	Pro	Arg	Thr	Gly	Phe	Pro	Pro	Gln
				165					170					175	
Pro	Gly	Met	Ala	Pro	Arg	Pro	Gly	Met	Pro	Pro	His	Pro	Gly	Met	Ala
			180					185					190		
Pro	Arg	Pro	Gly	Phe	Pro	Pro	Gln	Pro	Gly	Met	Ala	Pro	Arg	Pro	Gly
	195						200					205			
Met	Pro	Pro	His	Pro	Gly	Met	Ala	Pro	Arg	Pro	Gly	Phe	Pro	Pro	Gln
	210					215					220				
Pro	Gly	Met	Ala	Pro	Arg	Pro	Gly	Met	Pro	Pro	His	Pro	Gly	Met	Ala
225					230					235					240
Pro	Arg	Pro	Gly	Phe	Pro	Pro	Gln	Pro	Gly	Met	Ala	Pro	Arg	Pro	Gly
			245						250					255	
Met	Gln	Pro	Pro	Arg	Pro	Gly	Met	Pro	Pro	Gln	Pro	Gly	Phe	Pro	Pro
		260					265						270		

Lys Arg

<210> 18
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 <213> M. tuberculosis

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<223> gi|3261822

<400> 18

Met Ile Gly Asp Gly Ala Asn Gly Gly Pro Gly Gln Pro Gly Gly Pro
1 5 10 15
Gly Gly Leu Leu Tyr Gly Asn Gly Gly His Gly Gly Ala Gly Ala Ala
20 25 30
Gly Gln Asp Arg Gly Ala Gly Asn Ser Ala Gly Leu Ile Gly Asn Gly
35 40 45
Gly Ala Gly Gly Ala Gly Gly Asn Gly Gly Ile Gly Gly Ala Gly Ala
50 55 60
Pro Gly Gly Leu Gly Gly Asp Gly Gly Lys Gly Gly Phe Ala Asp Glu
65 70 75 80
Phe Thr Gly Gly Phe Ala Gln Gly Gly Arg Gly Gly Phe Gly Gly Asn
85 90 95
Gly Asn Thr Gly Ala Ser Gly Gly Met Gly Gly Ala Gly Gly Ala Gly
100 105 110
Gly Ala Gly Gly Ala Gly Gly Leu Leu Ile Gly Asp Gly Gly Ala Gly
115 120 125
Gly Ala Gly Gly Ile Gly Gly Ala Gly Gly Val Gly Gly Gly Gly Gly
130 135 140
Ala Gly Gly Thr Gly Gly Gly Gly Val Ala Ser Ala Phe Gly Gly Gly
145 150 155 160
Asn Ala Phe Gly Gly Arg Gly Gly Asp Gly Gly Asp Gly Gly Asp Gly
165 170 175
Gly Thr Gly Gly Ala Gly Gly Ala Arg Gly Ala Gly Gly Ala Gly Gly
180 185 190
Ala Gly Gly Trp Leu Ser Gly His Ser Gly Ala His Gly Ala Met Gly
195 200 205
Ser Gly Gly Glu Gly Gly Ala Gly Gly Gly Gly Gly Ala Arg Gly Glu
210 215 220
Ala Gly Ala Gly Gly Gly Thr Ser Thr Gly Thr Asn Pro Gly Lys Ala
225 230 235 240
Gly Ala Pro Gly Thr Gln Gly Asp Ser Gly Asp Pro Gly Pro Pro Gly

245

250

255

<210> 19
 <211> 484
 <212> PRT
 <213> M. tuberculosis

<220>
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 <223> PE_PGRS

<220>
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 <223> gi|2894254

<400> 19

Ala	Gln	Ala	Ser	Pro	Ala	Ala	His	Gly	Gly	Ser	Gly	Gly	Ala	Gly	Gly	1	5	10	15
Asn	Gly	Gly	Ala	Gly	Ser	Ala	Gly	Asn	Gly	Gly	Ala	Gly	Gly	Ala	Gly	20	25	30	
Gly	Asn	Gly	Gly	Ala	Gly	Gly	Asn	Gly	Gly	Gly	Gly	Asp	Ala	Gly	Asn	35	40	45	
Ala	Gly	Ser	Gly	Gly	Asn	Gly	Gly	Lys	Gly	Gly	Asp	Gly	Val	Gly	Pro	50	55	60	
Gly	Ser	Thr	Gly	Gly	Ala	Gly	Gly	Lys	Gly	Gly	Ala	Gly	Ala	Asn	Gly	65	70	75	80
Gly	Ser	Ser	Asn	Gly	Asn	Ala	Arg	Gly	Gly	Asn	Ala	Gly	Asn	Gly	Gly	85	90	95	
His	Gly	Gly	Ala	Gly	Gly	Ser	Gly	Asp	Thr	Gly	Gly	Ala	Gly	Gly	Ala	100	105	110	
Gly	Gly	Gln	Gly	Gly	Phe	Gly	Gly	Thr	Gly	Gly	Ser	Gly	Ser	Gly	Ile	115	120	125	
Gly	Gly	Gly	Ala	Gly	Gly	Asn	Gly	Gly	Asn	Gly	Gly	Ala	Gly	Gly	Thr	130	135	140	
Gly	Val	Val	Leu	Gly	Gly	Lys	Gly	Gly	Asp	Gly	Gly	Asn	Gly	Asp	His	145	150	155	160
Gly	Gly	Pro	Ala	Thr	Asn	Pro	Gly	Ser	Gly	Ser	Arg	Gly	Gly	Ala	Gly	165	170	175	
Gly	Ser	Gly	Gly	Asn	Gly	Gly	Ala	Gly	Gly	Asn	Ala	Thr	Gly	Ser	Gly	180	185	190	

Gly	Lys	Gly	Gly	Ala	Gly	Gly	Asn	Gly	Gly	Asp	Gly	Ser	Phe	Gly	Ala	
	195						200					205				
Thr	Ser	Gly	Pro	Ala	Ser	Ile	Gly	Val	Thr	Gly	Ala	Pro	Gly	Gly	Asn	
	210					215					220					
Gly	Gly	Lys	Gly	Gly	Ala	Gly	Gly	Ser	Asn	Pro	Asn	Gly	Ser	Gly	Gly	
225					230					235					240	
Asp	Gly	Gly	Lys	Gly	Gly	Asn	Gly	Gly	Ala	Gly	Gly	Asn	Gly	Gly	Ser	
			245						250					255		
Ile	Gly	Ala	Asn	Ser	Gly	Ile	Val	Gly	Gly	Ser	Gly	Gly	Ala	Gly	Gly	
		260					265						270			
Ala	Gly	Gly	Ala	Gly	Gly	Asn	Gly	Ser	Leu	Ser	Ser	Gly	Glu	Gly	Gly	
	275					280						285				
Lys	Gly	Gly	Asp	Gly	Gly	His	Gly	Gly	Asp	Gly	Val	Gly	Gly	Asn	Ser	
	290					295					300					
Ser	Val	Thr	Gln	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Gly	Ala	Gly	Gly	Ala	
305				310						315					320	
Gly	Gly	Ser	Gly	Phe	Phe	Gly	Gly	Lys	Gly	Gly	Phe	Gly	Gly	Asp	Gly	
				325				330						335		
Gly	Gln	Gly	Gly	Pro	Asn	Gly	Gly	Gly	Thr	Val	Gly	Thr	Val	Ala	Gly	
			340					345					350			
Gly	Gly	Gly	Asn	Gly	Gly	Val	Gly	Gly	Arg	Gly	Gly	Asp	Gly	Val	Phe	
		355				360						365				
Ala	Gly	Ala	Gly	Gly	Gln	Gly	Gly	Leu	Gly	Gly	Gln	Gly	Gly	Asn	Gly	
	370				375						380					
Gly	Gly	Ser	Thr	Gly	Gly	Asn	Gly	Gly	Leu	Gly	Gly	Ala	Gly	Gly	Gly	
385					390				395						400	
Gly	Gly	Asn	Ala	Pro	Asp	Gly	Gly	Phe	Gly	Gly	Asn	Gly	Gly	Lys	Gly	
			405					410						415		
Gly	Gln	Gly	Gly	Ile	Gly	Gly	Gly	Thr	Gln	Ser	Ala	Thr	Gly	Leu	Gly	
		420						425					430			
Gly	Asp	Gly	Gly	Asp	Gly	Gly	Asp	Gly	Gly	Asn	Gly	Gly	Asn	Ser	Gly	
	435						440					445				
Ala	Lys	Ala	Gly	Gly	Ala	Gly	Gly	Lys	Gly	Gln	Ala	Gly	Gln	Pro	Asn	
	450				455						460					
Ser	Gly	Thr	Glu	Pro	Gly	Phe	Gly	Gly	Asp	Gly	Gly	Leu	Gly	Gly	Ala	
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Gly	Ala	Thr	Pro													

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Pro	Gln	Gly	Ala	Asp	Gly	Asn	Ala	Gly	Asn	Gly	Gly	Asp	Gly	Gly	Val	1	5	10	15
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Gly	Thr	Thr	Gly	Gly	Ala	Gly	Gly	Ala	Gly	Gly	Ala	Gly	Gly	Thr	Gly	35	40	45	
Gly	Thr	Gly	Gly	Ala	Ala	Gly	Thr	Gly	Thr	Gly	Gly	Gln	Gln	Gly	Asn	50	55	60	
Gly	Gly	Asn	Gly	Gly	Asn	Gly	Gly	Thr	Gly	Gly	Lys	Gly	Gly	Thr	Gly	65	70	75	
Gly	Asp	Gly	Ala	Leu	Ala	Gly	Ser	Ser	Gly	Gly	Ala	Gly	Gly	Lys	Gly	85	90	95	
Gly	Asn	Gly	Gly	Asp	Ala	Gly	Lys	Ala	Gly	Thr	Gly	Ser	Ala	Pro	Gly	100	105	110	
Thr	Ala	Gly	Thr	Gly	Gly	Asp	Gly	Gly	Lys	Gly	Gly	Asn	Gly	Gly	Ile	115	120	125	
Gly	Ala	Ala	Gly	Thr	Thr	Gly	Pro	Val	Gly	Thr	Gly	Ala	Ser	Gly	Gly	130	135	140	
Thr	Gly	Gly	Ser	Gly	Gly	Ala	Gly	Gly	Thr	Gly	Gly	Asp	Gly	Gly	Ala	145	150	155	
Ala	Asn	Gly	Gly	Thr	Ala	Gly	Ala	Gly	Gly	Ala	Gly	Gly	Asn	Gly	Gly	165	170	175	
Lys	Gly	Gly	Asp	Gly	Gly	Ala	Gly	Val	Thr	Ser	Ser	Thr	Ala	Gly	Asn	180	185	190	

Ser Gly Gly Ala Gly Gly Ser Gly Gly Lys Gly Gly Asp Ala Gly Ala
 195 200 205
 Gly Gly Ala Gly Ala Thr Pro Gly Ala Asn Gly Ile Ala Gly Asn Gly
 210 215 220
 Gly Asp Gly Gly Asp Gly Ala Ala Gly Ala Val Gly Ile Ser Gly Ala
 225 230 235 240
 Thr Gly Ala Gly Asp Gly Gly His Gly Gly Thr Gly Ala Ala Gly Gly
 245 250 255
 Asn Gly Gly Thr Gly Gly Ala Gly Gly Ser Gly Ile Asp Gly Val Gly
 260 265 270
 Gly Gly Thr Gly Gly Thr Gly Gly Asn Gly Gly Asn Gly Ala Ile Gly
 275 280 285
 Gly Ala Gly Gly Asp Ala Gly Gly Ser Gly Asn Ser Gly Gly Asn Gly
 290 295 300
 Gly Ile Gly Gly Lys Gly Gly Asn Ala Gly Ala Gly Gly Ala Ala Gly
 305 310 315 320
 Ser Asn Gly Gly Thr Val Gly Ala Asn Gly Thr Gly Gly Asp Gly Gly
 325 330 335
 Asn Gly Gly Ala Ala Gly Ala Ala Thr Ala Gly Ser Asn Gly Gly Ala
 340 345 350
 Gly Thr Gly Ser Ala Gly Gly Asn Gly Gly Thr Gly Gly Arg Gly Gly
 355 360 365
 Ser Gly Gly Ala Gly Gly Asp Gly Ile Gly Gly Val Gly Gly Gly Lys
 370 375 380
 Gly Gly Asn Gly Ala Asp Gly Glu Val Gly Gly Ala Gly Gly Ala Gly
 385 390 395 400
 Gly Ser Gly Pro Asn Thr Ser Pro Gly Gly Asn Gly Gly Gln Gly Gly
 405 410 415
 Gln Gly Gly Ser Gly Gly Ala Gly Gly Ala Ala Gly Ala Gly Gly Ala
 420 425 430
 Gly Gly Gly Ala Asn Gly Thr Ala Gly Asn Gly Gly Gln Gly Gly Ala
 435 440 445
 Gly Gly Thr Gly Gly Ala Gly Ala Ala Ser Ser Ala Thr Asn Gly Gly
 450 455 460
 Ser Gly Gly Ala Gly Gly Thr Gly Gly Asp Gly Gly Ser Gly Gly Ala
 465 470 475 480
 Gly Gly Thr Gly Gly Ala Gly Gly Thr Gly Gly Ala Ala Gly Asp Gly

1000
900
800
700
600
500
400
300
200
100
0

485								490				495			
Gly	Gln	Gly	Gly	Gln	Gly	Gly	Ala	Gly	Gly	Gly	Ala	Gly	Gly	Gln	Gly
500								505				510			
Gly	Ala	Gly	Gly	Ala	Gly	Gly	Thr	Gly	Gly	Asn	Gly	Gly	Asn	Ile	Thr
515								520				525			
Gly	Gly	Thr	Ala	Gly	Thr	Ala	Gly	Ala	Ala	Gly	Asn	Gly	Gly	Ala	Ala
530								535				540			
Gly	Lys	Gly	Gly	Ala	Gly	Gly	Gln	Gly	Gly	Thr	Gly	Gly	Gly	Thr	Gly
545								550				555			
Gly	Gln	Gly	Gly	Ala	Gly	Gly	Asp	Gly	Gly	Ala	Gly	Gly	Thr	Gly	Gly
				565								570			
Asp	Arg	Thr	Val	Gly	Gly	Gly	Thr	Val	Pro	Ala	Gly	Ser	Gly	Gly	Gln
				580								585			
Gly	Gly	Asn	Ala	Gly	Gly	Gly	Gly	Ala	Gly	Gly	Gln	Gly	Gly	Ala	Asp
				595								600			
Gly	Gly	Ser	Gly	Gly	Asp	Gly	Gly	Asp	Ala	Gly	Thr	Gly	Gly	Asn	Gly
610												620			
Gly	Asn	Gly	Gly	Asn	Arg	Asn	Ser	Gly	Asn	Gly	Thr	Gly	Gly	Ala	Gly
625								630				635			
Gly	Asn	Gly	Gly	Gly	Gly	Ala	Asn	Gly	Gly	Ala	Gly	Gly	Ala	Gly	Gly
				645								650			
Ser	Gly	Gly	Gly	Thr	Gly	Gly	Asn	Gly	Gly	Ala	Gly	Gly	Asp	Ala	Gly
				660								665			
Asp	Ala	Gly	Asn	Gly	Gly	Asn	Gly	Asn	Gly	Thr	Gly	Asn	Gly	Gly	Asn
675								680				685			
Gly	Gly	Asn	Gly	Gly	Ile	Ala	Gly	Met	Gly	Gly	Asn	Gly	Gly	Ala	Gly
690								695				700			
Thr	Gly	Ser	Gly	Asn	Gly	Gly	Asn	Gly	Gly	Ser	Gly	Gly	Asn	Gly	Gly
705								710				715			
Asn	Ala	Gly	Met	Gly	Gly	Asn	Ser	Gly	Thr	Gly	Ser	Gly	Asp	Gly	Gly
				725								730			
Ala	Gly	Gly	Asn	Gly	Gly	Ala	Ala	Gly	Thr	Gly	Gly	Thr	Gly	Gly	Asp
				740								745			
Gly	Gly	Leu	Thr	Gly	Thr	Gly	Gly	Thr	Gly	Gly	Ser	Gly	Gly	Thr	Gly
755								760				765			
Gly	Asp	Gly	Gly	Asn	Gly	Gly	Asn	Gly	Ala	Asp	Asn	Thr	Ala	Asn	Met
770								775				780			

Thr Ala Gln Ala Gly Gly Asp Gly Gly Asn Gly Gly Asp Gly Gly Phe
785 790 795 800

Gly Gly Gly Ala Gly Ala Gly Gly Gly Gly Leu Thr Ala Gly Ala Asn
805 810 815

Gly Thr Gly Gly Gln Gly Gly Ala Gly Gly Asp Gly Gly Asn Gly Ala
820 825 830

Ile Gly Gly His Gly Pro Leu Thr Asp Asp Pro Gly Gly Asn Gly Gly
835 840 845

Thr Gly Gly Asn Gly Gly Thr Gly Gly Thr Gly Gly Ala Gly Ile Gly
850 855 860

Ser Leu Gly Gly Gly Thr Gly Gly Asp Gly Gly Asn Gly Gly Asn Gly
865 870 875 880

Gly Thr Gly Gly Glu Gly Gly Glu Val Gly Gly Ala Gly Gly Thr Gly
885 890 895

Gly Ala Ala Gly Asn Gly Gly Asp Gly Gly Thr Gly Gly Thr Gly Gly
900 905 910

Gly Asp Gly Gly Ala Gly Gly Thr Gly Gly Thr Gly Gly Thr Gly Gly
915 920 925

Leu Gly Asp Pro Arg Val Gly Gly Ser Gly Gly Asp Gly Gly Thr Gly
930 935 940

Gly Ser Gly Gly Ala Ala Gly Asn Gly Gly Asn Gly Gly Asn Ala Gly
945 950 955 960

Ala Gly Gly Asn Gly Asn Gly Gly Thr Gly Gly Ala Gly Gly Ile Gly
965 970 975

Gly Thr Gly Gly Asn Gly Gly Asp Ala Glu Pro Gly Val Pro Pro Gly
980 985 990

Ala Gly Gly Ala Gly Gly Ala Gly Thr Thr Gly Gly Lys Gly Gly Thr
995 1000 1005

Gly Gly Asn Gly Ser Gly Thr Gly Ser Gly Gly Thr Gly Gly Asp
1010 1015 1020

Gly Gly Thr Gly Gly Gly Gly Gly Asn Gly Gly Thr Gly Trp Asn
1025 1030 1035

Gly Gly Lys Gly Asp Thr Gly Ser Gly Gly Gly Ala Gly Asp Gly
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Gly Lys Ala Pro Ala Gly Gly Thr Gly Gly Ala Gly Gly Asp Gly
1055 1060 1065

Gly Ala Gly Gly Lys Gly Gly Ser Gly Gly Val
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Asn Ile Gly Ser Thr Asn Val Gly Ser Gly Asn Ile Gly Ser Thr Asn
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Val Gly Ser Gly Asn Ile Gly Asp Thr Asn Phe Gly Asn Gly Asn Asn
35 40 45
Gly Asn Phe Asn Phe Gly Ser Gly Asn Thr Gly Ser Asn Asn Ile Gly
50 55 60
Phe Gly Asn Thr Gly Ser Gly Asn Phe Gly Phe Gly Asn Thr Gly Asn
65 70 75 80
Asn Asn Ile Gly Ile Gly Leu Thr Gly Asp Gly Gln Ile Gly Ile Gly
85 90 95
Gly Leu Asn Ser Gly Ser Gly Asn Ile Gly Phe Gly Asn Ser Gly Thr
100 105 110
Gly Asn Val Gly Leu Phe Asn Ser Gly Thr Gly Asn Val Gly Phe Gly
115 120 125
Asn Ser Gly Thr Ala Asn Thr Gly Phe Gly Asn Ala Gly Asn Val Asn
130 135 140
Thr Gly Phe Trp Asn Gly Gly Ser Thr Asn Thr Gly Leu Ala Asn Ala
145 150 155 160
Gly Ala Gly Asn Thr Gly Phe Phe Asp Ala Gly Asn Tyr Asn Phe Gly
165 170 175
Ser Leu Asn Ala Gly Asn Ile Asn Ser Ser Phe Gly Asn Ser Gly Asp
180 185 190

Gly Asn Ser Gly Phe Leu Asn Ala Gly Asp Val Asn Ser Gly Val Gly
195 200 205

Asn Ala Gly Asp Val Asn Thr Gly Leu Gly Asn Ser Gly Asn Ile Asn
210 215 220

Thr Gly Gly Phe Asn Pro Gly Thr Leu Asn Thr Gly Phe Phe Ser Ala
225 230 235 240

Met Thr Gln Ala Gly Pro Asn Ser Gly Phe Phe Asn Ala Gly Thr Gly
245 250 255

Asn Ser Gly Phe Gly His Asn Asp Pro Ala Gly Ser Gly Asn Ser Gly
260 265 270

Ile Gln Asn Ser Gly Phe Gly Asn Ser Gly Tyr Val Asn Thr Ser Thr
275 280 285

Thr Ser Met Phe Gly Gly Asn Ser Gly Val Leu Asn Thr Gly Tyr Gly
290 295 300

Asn Ser Gly Phe Tyr Asn Ala Ala Val Asn Asn Thr Gly Ile Phe Val
305 310 315 320

Thr Gly Val Met Ser Ser Gly Phe Phe Asn Phe Gly Thr Gly Asn Ser
325 330 335

Gly Leu Leu Val Ser Gly Asn Gly Leu Ser Gly Phe Phe Lys Asn Leu
340 345 350

Phe Gly

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Met Thr Val Leu Asp Trp Leu Ser Leu Ala Leu Ala Thr Gly Leu Phe
1 5 10 15

Val Tyr Leu Leu Val Ala Leu Leu Arg Ala Asp Arg Ala

20

25

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Met	Ser	Ala	Asn	Lys	Lys	Pro	Val	Thr	Thr	Pro	Leu	His	Leu	Leu	Gln	1	5	10	15
Gln	Leu	Ser	His	Ser	Leu	Val	Glu	His	Leu	Glu	Gly	Ala	Cys	Lys	Gln	20	25	30	
Ala	Leu	Val	Asp	Ser	Glu	Lys	Leu	Leu	Ala	Lys	Leu	Glu	Lys	Gln	Arg	35	40	45	
Gly	Lys	Ala	Gln	Glu	Lys	Leu	His	Lys	Ala	Arg	Thr	Lys	Leu	Gln	Asp	50	55	60	
Ala	Ala	Lys	Ala	Gly	Lys	Thr	Lys	Ala	Gln	Ala	Lys	Ala	Arg	Glu	Thr	65	70	75	80
Ile	Ser	Asp	Leu	Glu	Glu	Ala	Leu	Asp	Thr	Leu	Lys	Ala	Arg	Gln	Ala	85	90	95	
Asp	Thr	Arg	Thr	Tyr	Ile	Val	Gly	Leu	Lys	Arg	Asp	Val	Gln	Glu	Ser	100	105	110	
Leu	Lys	Leu	Ala	Gln	Gly	Val	Gly	Lys	Val	Lys	Glu	Ala	Ala	Gly	Lys	115	120	125	
Ala	Leu	Glu	Ser	Arg	Lys	Ala	Lys	Pro	Ala	Thr	Lys	Pro	Ala	Ala	Lys	130	135	140	
Ala	Ala	Ala	Lys	Pro	Ala	Val	Lys	Thr	Val	Ala	Ala	Lys	Pro	Ala	Ala	145	150	155	160
Lys	Pro	Ala	Ala	Lys	Pro	Ala	Ala	Lys	Pro	Ala	Ala	Lys	Pro	Ala	Ala	165	170	175	
Lys	Thr	Ala	Ala	Ala	Lys	Pro	Ala	Ala	Lys	Pro	Thr	Ala	Lys	Pro	Ala	180	185	190	

Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Thr Ala Ala Ala Lys Pro
195 200 205

Ala Ala Lys Pro Ala Ala Lys Pro Val Ala Lys Pro Ala Ala Lys Pro
210 215 220

Ala Ala Lys Thr Ala Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys
225 230 235 240

Pro Val Ala Lys Pro Thr Ala Lys Pro Ala Ala Lys Thr Ala Ala Ala
245 250 255

Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala
260 265 270

Lys Pro Val Ala Lys Ser Ala Ala Ala Lys Pro Ala Ala Lys Pro Ala
275 280 285

Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Val
290 295 300

Ala Ala Lys Pro Ala Ala Thr Lys Pro Ala Thr Ala Pro Ala Ala Lys
305 310 315 320

Pro Ala Ala Thr Pro Ser Ala Pro Ala Ala Ala Ser Ser Ala Ala Ser
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Ala Thr Pro Ala Ala Gly Ser Asn Gly Ala Ala Pro Thr Ser Ala Ser
340 345 350

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<223> polyhydroxyalkanoate synthesis protein PhaF

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Ile Glu Lys Tyr Ser Arg Gln Ile Trp Leu Ala Gly Leu Gly Ala Tyr
20 25 30

Ser Lys Val Ser Lys Asp Gly Ser Lys Leu Phe Glu Thr Leu Val Lys
35 40 45

Asp Gly Glu Lys Ala Glu Lys Glu Ala Lys Ser Asp Val Asp Ala Gln
50 55 60

Val Gly Ala Ala Lys Ala Ser Ala Arg Ser Ala Lys Ser Lys Val Asp
65 70 75 80

Glu Val Arg Asp Arg Ala Leu Gly Lys Trp Ser Glu Leu Glu Glu Ala
85 90 95

Phe Asp Lys Arg Leu Asn Ser Ala Ile Ser Arg Leu Gly Val Pro Ser
100 105 110

Arg Asn Glu Val Lys Glu Leu His Ser Lys Val Asp Thr Leu Thr Lys
115 120 125

Gln Ile Glu Lys Leu Thr Gly Val Ser Val Lys Pro Ala Ala Lys Ala
130 135 140

Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Thr
145 150 155 160

Ala Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Ala Ala Ala Lys
165 170 175

Pro Ala Ala Lys Pro Ala Ala Lys Lys Thr Ala Ala Lys Thr Ala Ala
180 185 190

Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Thr Ala Lys Ala Ala
195 200 205

Ala Lys Pro Ala Thr Lys Pro Ala Ala Lys Ala Ala Ala Lys Pro Ala
210 215 220

Ala Lys Pro Ala Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro
225 230 235 240

Ala Ala Ala Thr Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro
245 250 255

Ala Ala Lys Lys Pro Ala Ala Lys Lys Pro Ala Ala Lys Pro Ala Ala
260 265 270

Ala Lys Pro Ala Ala Pro Ala Ala Ser Ser Ser Ala Pro Ala Ala Pro
275 280 285

Ala Ala Thr Pro Ala Ala Ser Ala Pro Ala Ala Asn Ala Pro Ala Thr
290 295 300

Pro Ser Ser Gln Gly
305

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<223> dicarboxylate transporter (dctM)

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<223> gi|3323280

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Leu Ile Gly Thr Leu Met Leu Leu Pro Leu Val Leu Phe Leu Ile Glu
20 25 30

Arg Ile Phe Gly Phe Leu Thr Arg Gly Val Gly Ser Glu Val Phe Ser
35 40 45

Ala His Glu Asp Phe Ile Phe Leu Phe Phe Ser Ser Ser Asp Ala Ala
50 55 60

Val Ala Gln Leu Ala Phe Val Phe Ser Cys Val Ala Gly Ile Tyr Ala
65 70 75 80

Ala Arg Glu Arg Lys His Leu Ser Val Thr Leu Phe Ser Cys Asp Val
85 90 95

Asp Arg Pro Met His Arg Val Leu Ser Phe Leu Ser Ala Ile Cys Thr
100 105 110

Val Ala Val Leu Ser Ala Cys Phe Phe Ala Ser Gly Pro Asn Ile Val
115 120 125

Ala Val Phe Arg Lys Glu Glu Ala Val Trp Gly Val Pro Leu Arg Trp
130 135 140

Ile Phe Thr Ala Leu Pro Cys Met Tyr Gly Ala Leu Leu Phe His Tyr
145 150 155 160

Ala Arg Glu Val Lys Cys Arg Thr Cys Val Ile Val Gly Leu Leu Val
165 170 175

Gly Val Leu Ile Ser Thr Gly Ser Ile Ala Ser Val Leu Phe His Leu
180 185 190

Phe Asp Leu Thr Val Pro Leu Leu Asp Ser Val Phe His Gly Trp Val
195 200 205

Ala Val Gly Thr Arg Leu Phe Trp Pro Phe Val Leu Leu Leu Leu Leu
210 215 220

Leu	Ala	Ala	Gln	Gly	Leu	Pro	Leu	Phe	Ile	Thr	Leu	Leu	Ala	Ile	Ala	
225					230					235					240	
Tyr	Leu	Ala	Leu	Ser	Val	Asp	Gly	Gly	Tyr	Val	Asp	Thr	Leu	Pro	Leu	
				245					250					255		
Glu	Gly	Tyr	Lys	Ile	Leu	Thr	Asp	Thr	Gly	Gly	Ile	Val	Ala	Val	Pro	
			260					265					270			
Leu	Phe	Ala	Thr	Ala	Ser	Leu	Leu	Leu	Ala	Arg	Gly	Ser	Thr	Gly	Thr	
		275					280					285				
Arg	Leu	Leu	Arg	Leu	Val	Lys	Glu	Ala	Val	Gly	Trp	Leu	Arg	Gly	Gly	
	290					295					300					
Ala	Ala	Val	Ala	Cys	Val	Ala	Val	Ala	Ala	Leu	Phe	Thr	Ser	Leu	Thr	
305					310					315					320	
Gly	Val	Ser	Gly	Val	Thr	Ile	Leu	Ala	Leu	Gly	Ser	Leu	Phe	Lys	Leu	
				325					330					335		
Ile	Leu	Thr	Gly	Asn	Lys	Tyr	Pro	Glu	His	Asp	Ala	Glu	Ala	Leu	Ile	
			340					345					350			
Thr	Ser	Ser	Gly	Ala	Ile	Gly	Leu	Leu	Phe	Pro	Pro	Ser	Ala	Ala	Ile	
		355					360					365				
Ile	Ile	Phe	Gly	Ala	Thr	Asn	Ile	Leu	Thr	Val	His	Ile	Val	Asp	Leu	
	370					375					380					
Phe	Lys	Gly	Ala	Leu	Leu	Pro	Gly	Thr	Leu	Leu	Val	Leu	Ser	Ala	Met	
385					390					395					400	
Cys	Leu	Gly	Val	Ala	Lys	Asp	Arg	Thr	Gln	Val	Arg	Pro	Ser	Phe	Ser	
			405					410						415		
Trp	Gln	Leu	Leu	Val	His	Ala	Val	Arg	Gly	Ser	Val	Phe	Asp	Leu	Ala	
		420						425					430			
Leu	Pro	Val	Cys	Ile	Ser	Leu	Gly	Tyr	Phe	Ser	Gly	Thr	Leu	Asn	Leu	
		435					440					445				
Leu	Gln	Cys	Ala	Ser	Leu	Thr	Thr	Leu	Leu	Ala	Phe	Val	Leu	Gly	Thr	
	450					455					460					
Trp	Val	Arg	Arg	Asp	Phe	Thr	Val	Lys	Glu	Ala	Cys	Ala	Thr	Ala	Leu	
465				470					475						480	
Glu	Ser	Leu	Pro	Ile	Val	Gly	Gly	Ile	Leu	Ile	Ile	Val	Ala	Ala	Ala	
			485					490						495		
Lys	Gly	Leu	Ser	Phe	Tyr	Leu	Val	Asp	Ala	Asn	Val	Pro	Asp	Thr	Leu	
			500					505					510			

Ile Ala Phe Leu Gln His Ala Ile Ser Ser Lys Tyr Ala Phe Leu Leu
515 520 525

Leu Leu Asn Val Leu Leu Leu Gly Val Gly Cys Ile Met Asp Leu Tyr
530 535 540

Ser Ala Ile Leu Val Ile Ser Pro Leu Val Leu Pro Leu Ala Val His
545 550 555 560

Phe Gly Val His Pro Val His Ala Ser Val Val Phe Leu Met Asn Leu
565 570 575

Glu Leu Gly Ala Leu Thr Pro Pro Ile Gly Met Asn Leu Phe Ile Ala
580 585 590

Ser Phe Ala Phe Glu Lys Pro Ile Val Tyr Leu Thr Arg Ala Ile Ala
595 600 605

Pro Phe Leu Leu Ala Gln Leu Gly Val Leu Leu Leu Thr Thr Tyr Ile
610 615 620

Pro Trp Leu Ser Thr Ala Phe Leu
625 630

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<211> 653

<212> PRT

<213> Vibrio cholerae

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<221> misc_feature

<223> iron(III) ABC transporter, permease protein

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<223> gi|9654609

<400> 26

Met Ser Val Leu Arg Leu Thr Gly Leu Gly Ala Leu Thr Leu Leu Leu
1 5 10 15

Ala Leu Val Ser Leu Gln Trp Gly His Asn Leu Thr Leu Asn Glu Gln
20 25 30

Trp Gln Leu Val Leu Gly His Gln Ala Ala Gln Ser Phe Ala Gln Val
35 40 45

Asn Phe Ile Tyr Ala Gln Leu Pro Arg Ala Val Met Ala Ile Val Val
50 55 60

Gly Ala Val Leu Gly Leu Val Gly Ser Leu Met Gln Gln Leu Thr Gln
65 70 75 80

Asn	Arg	Leu	Thr	Ser	Pro	Leu	Thr	Leu	Gly	Thr	Ser	Ser	Gly	Ala	Trp	85	90	95
Leu	Gly	Leu	Ile	Ile	Val	Asn	Ile	Trp	Phe	Ser	Asp	Trp	Val	Ala	Asp	100	105	110
Tyr	Ser	Ala	Leu	Ala	Ala	Met	Ala	Gly	Ala	Leu	Leu	Ala	Phe	Ala	Leu	115	120	125
Ile	Ile	Ser	Ile	Ala	Gly	Leu	Arg	Asn	Leu	Thr	Gly	Leu	Pro	Leu	Val	130	135	140
Val	Ser	Gly	Met	Val	Val	Asn	Ile	Leu	Leu	Gly	Ser	Ile	Ala	Thr	Ala	145	150	155
Leu	Val	Leu	Leu	Asn	Glu	Glu	Phe	Ala	Gln	Asn	Val	Phe	Met	Trp	Gly	165	170	175
Ala	Gly	Asp	Leu	Ala	Gln	Asn	Gly	Trp	Glu	Trp	Leu	Thr	Trp	Leu	Leu	180	185	190
Pro	Arg	Leu	Ala	Leu	Val	Phe	Pro	Leu	Leu	Leu	Phe	Ala	Pro	Arg	Val	195	200	205
Leu	Thr	Leu	Leu	Arg	Leu	Gly	His	Glu	Gly	Ala	Ala	Ala	Arg	Gly	Leu	210	215	220
Ala	Val	Leu	Pro	Ala	Phe	Leu	Phe	Leu	Met	Ala	Gly	Gly	Ile	Trp	Leu	225	230	235
Val	Ser	Ala	Ser	Ile	Thr	Ala	Val	Gly	Val	Ile	Gly	Phe	Ile	Gly	Leu	245	250	255
Leu	Thr	Pro	Asn	Ile	Ala	Arg	Ser	Leu	Gly	Ala	Arg	Thr	Thr	Lys	Met	260	265	270
Glu	Leu	Tyr	Ser	Ser	Ala	Leu	Leu	Gly	Ala	Leu	Leu	Leu	Leu	Ala	Thr	275	280	285
Asp	Met	Leu	Ala	Met	Gly	Leu	Ser	Val	Trp	Ala	Glu	Glu	Val	Val	Pro	290	295	300
Ser	Gly	Ile	Thr	Ala	Ala	Val	Ile	Gly	Ala	Pro	Ala	Leu	Ile	Trp	Phe	305	310	315
Ser	Arg	Arg	Gln	Leu	Gln	Ala	Gln	Asp	Ser	Leu	Ser	Ile	Ser	Leu	Ser	325	330	335
Ser	His	Arg	Arg	Ser	Pro	Ser	Arg	Trp	Ala	Val	Met	Leu	Ile	Ala	Ala	340	345	350
Ala	Leu	Leu	Leu	Ala	Leu	Ser	Leu	His	Ile	Gly	Trp	Gln	Met	Glu	Ser	355	360	365

<211> 356
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> tolA protein

<220>
<221> misc_feature
<223> gi|9656364

<400> 27

Met Lys Glu Asn Lys Ser Arg Lys Ser Asn Asp Ala Lys Ser Ile Thr
1 5 10 15

Ile Ser Leu Ala Met His Gly Ala Leu Val Ala Ile Leu Leu Trp Gly
20 25 30

Ala Asp Phe Thr Met Ser Asp Pro Glu Pro Thr Gly Gln Met Ile Glu
35 40 45

Ala Val Val Ile Asp Pro Gln Leu Val Arg Gln Gln Ala Gln Gln Ile
50 55 60

Arg Ser Gln Arg Glu Glu Ala Ala Lys Lys Glu Gln Glu Arg Leu Asp
65 70 75 80

Lys Leu Arg Arg Glu Ser Glu Gln Leu Glu Lys Asn Arg Gln Ala Glu
85 90 95

Glu Glu Arg Ile Arg Gln Leu Lys Glu Gln Gln Ala Lys Glu Ala Lys
100 105 110

Ala Ala Arg Glu Ala Glu Lys Leu Arg Glu Gln Lys Glu Gln Glu Arg
115 120 125

Leu Ala Ala Glu Gln Lys Ala Arg Glu Glu Lys Glu Arg Ala Ala Lys
130 135 140

Ala Glu Ala Glu Arg Lys Val Lys Glu Glu Ala Ala Lys Lys Ala Glu
145 150 155 160

Gln Glu Arg Val Ala Lys Glu Ala Ala Ala Lys Ala Glu Gln Gln
165 170 175

Arg Ile Glu Arg Glu Lys Glu Ala Lys Leu Ala Glu Glu Lys Ala Lys
180 185 190

Arg Glu Lys Glu Val Ala Ala Lys Ala Glu Gln Glu Arg Leu Ala Lys
195 200 205

Glu Lys Ala Ala Lys Glu Ala Ala Asp Lys Ala Lys Lys Glu Lys Glu
 210 215 220

Arg Ala Ala Lys Ala Glu Ala Glu Arg Lys Ala Gln Glu Ala Ala Leu
 225 230 235 240

Asn Asp Ile Phe Gly Ser Leu Ser Glu Glu Ser Gln Gln Asn Asn Ala
 245 250 255

Ala Arg Gln Gln Phe Val Thr Ser Glu Val Gly Arg Tyr Gly Ala Ile
 260 265 270

Tyr Thr Gln Leu Ile Arg Gln Asn Leu Leu Val Glu Asp Ser Phe Arg
 275 280 285

Gly Lys Gln Cys Arg Val Asn Leu Lys Leu Ile Pro Thr Gly Thr Gly
 290 295 300

Ala Leu Leu Gly Ser Leu Thr Val Leu Asp Gly Asp Ser Arg Leu Cys
 305 310 315 320

Ala Ala Thr Lys Arg Ala Val Ala Gln Val Asn Ser Phe Pro Leu Pro
 325 330 335

Lys Asp Gln Pro Asp Val Val Glu Lys Leu Lys Asn Ile Asn Leu Thr
 340 345 350

Val Ala Pro Glu
 355

<210> 28
 <211> 73
 <212> PRT
 <213> L. major

<220>
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 <223> hydrophilic surface protein 2

<220>
 <221> misc_feature
 <223> gi|1743289

<400> 28

Met Gly Ser Ser Cys Thr Lys Asp Ser Ala Lys Glu Pro Gln Lys Ser
 1 5 10 15

Ala Gly Asn Ile Asp Thr Thr Thr Arg Ser Asp Glu Lys Asp Gly Val
 20 25 30

Leu Val Gln Gln Asn Asp Gly Asp Val Gln Lys Lys Ser Glu Asp Gly
 35 40 45

Asp Asn Val Gly Glu Gly Gly Lys Gly Asn Glu Asp Gly Asn Asp Asp
50 55 60

Gln Pro Lys Glu His Ala Ala Gly Asn
65 70

<210> 29
<211> 177
<212> PRT
<213> L. major

<220>
<221> misc_feature
<223> hydrophilic surface protein

<220>
<221> misc_feature
<223> gi|468328

<400> 29

Met Gly Ser Ser Cys Thr Lys Asp Ser Ala Lys Glu Pro Gln Lys Ser
1 5 10 15

Ala Asp Lys Ile Lys Ser Thr Asn Glu Thr Asn Gln Gly Gly Asn Ala
20 25 30

Ser Gly Ser Arg Lys Ser Ala Gly Gly Arg Ala Asn Glu Tyr Asp Pro
35 40 45

Lys Asp Asp Gly Phe Thr Pro Asn Asn Glu Asp Arg Cys Pro Lys Glu
50 55 60

Asp Gly His Ala Pro Lys Asn Asp Asp His Ala Pro Lys Glu Asp Gly
65 70 75 80

His Ala Pro Lys Asn Asp Asp His Ala Pro Lys Glu Asp Gly His Ala
85 90 95

Pro Lys Asn Asp Asp His Ala Pro Lys Glu Asp Gly His Ala Pro Lys
100 105 110

Asn Asp Asp His Ala Pro Lys Glu Asp Gly His Ala Pro Lys Asn Asp
115 120 125

Asp His Ala Pro Lys Glu Asp Gly His Ala Pro Lys Asn Asp Gly Asp
130 135 140

Val Gln Lys Lys Ser Glu Asp Gly Asp Asn Val Gly Glu Gly Gly Lys
145 150 155 160

Gly Asn Glu Asp Gly Asn Asp Asp Gln Pro Lys Glu His Ala Ala Gly

165

170

175

Asn

<210> 30
 <211> 106
 <212> PRT
 <213> Plasmodium falciparum

<220>
 <221> misc_feature
 <223> predicted integral membrane protein

<220>
 <221> misc_feature
 <223> gi|3845179

<400> 30

Met Tyr Ile Cys Phe Phe Phe Phe Phe Phe Phe Phe Leu Val Ile Lys Leu
 1 5 10 15

Gly Glu Asp Glu Asn Phe Gly Ser Ser Cys Phe Tyr Ser Leu Gly Asn
 20 25 30

Thr Lys Ile Leu Thr Thr Val Tyr Gly Pro Asn Pro Asp Ser Lys Tyr
 35 40 45

Ala Thr Tyr Ser Lys Gly Lys Val Phe Leu Asp Val Lys Ser Leu Asn
 50 55 60

Ile Asn Thr Ile Gly Ala Ser Asp Arg Val Leu Tyr Ile Tyr Gly Phe
 65 70 75 80

Phe Phe Phe Phe Phe Phe Phe Phe Phe Phe Phe Ile Leu Asn Arg Ser Tyr
 85 90 95

Phe Phe Leu Val Leu Phe Ile Ile Phe Ile
 100 105

<210> 31
 <211> 396
 <212> PRT
 <213> Plasmodium falciparum

<220>
 <221> misc_feature
 <223> Circumsporozoite (CS) protein

<220>
 <221> misc_feature

<223> gi|4493889

<400> 31

Met Arg Lys Leu Ala Ile Leu Ser Val Ser Ser Phe Leu Phe Val Glu
1 5 10 15
Ala Leu Phe Gln Glu Tyr Gln Cys Tyr Gly Ser Ser Ser Asn Thr Arg
20 25 30
Val Leu Asn Glu Leu Asn Tyr Asp Asn Ala Gly Thr Asn Leu Tyr Asn
35 40 45
Glu Leu Glu Met Asn Tyr Tyr Gly Lys Gln Glu Asn Trp Tyr Ser Leu
50 55 60
Lys Lys Asn Ser Arg Ser Leu Gly Glu Asn Asp Asp Gly Asn Asn Glu
65 70 75 80
Asp Asn Glu Lys Leu Arg Lys Pro Lys His Lys Lys Leu Lys Gln Pro
85 90 95
Ala Asp Gly Asn Pro Asp Pro Asn Ala Asn Pro Asn Val Asp Pro Asn
100 105 110
Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Val Asp Pro Asn
115 120 125
Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
130 135 140
Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
145 150 155 160
Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
165 170 175
Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
180 185 190
Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
195 200 205
Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
210 215 220
Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
225 230 235 240
Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
245 250 255
Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
260 265 270

Lys Asn Asn Gln Gly Asn Gly Gln Gly His Asn Met Pro Asn Asp Pro
275 280 285

Asn Arg Asn Val Asp Glu Asn Ala Asn Ala Asn Ser Ala Val Lys Asn
290 295 300

Asn Asn Asn Glu Glu Pro Ser Asp Lys His Ile Lys Glu Tyr Leu Asn
305 310 315 320

Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr
325 330 335

Cys Gly Asn Gly Ile Gln Val Arg Ile Lys Pro Gly Ser Ala Asn Lys
340 345 350

Pro Lys Asp Glu Leu Asp Tyr Ala Asn Asp Ile Glu Lys Lys Ile Cys
355 360 365

Lys Met Glu Lys Cys Ser Ser Val Phe Asn Val Val Asn Ser Ser Ile
370 375 380

Gly Leu Ile Met Val Leu Ser Phe Leu Phe Leu Asn
385 390 395

<210> 32

<211> 497

<212> PRT

<213> B. burgdorferi

<220>

<221> misc_feature

<223> predicted coding region BB0553

<220>

<221> misc_feature

<223> gi|2688482

<400> 32

Met Asn Lys Thr Lys Asn Arg Ser Leu Thr Tyr Phe Ile Ile Leu Ser
1 5 10 15

Cys Ile Ser Leu Phe Gly Ala Asn Asn Asn Thr Ile Ser Tyr Ser Ser
20 25 30

Ile Glu Ile Pro Leu Glu Asp Leu Ser Glu Glu Phe Lys Ser Ser Gly
35 40 45

Asn Lys Ser Asp Gln Ile Asn Thr Ser Lys His Leu Asn Lys Asn Ile
50 55 60

Val Ser Tyr Glu Asp Pro Lys Lys Gly Lys Asp Leu Lys Leu Pro Glu

65	70					75					80				
Asn Ile Arg Asp	Lys 85	Lys	Leu	Pro	Gln	Lys 90	Arg	Met	Asp	Glu	Asn 95	Asp			
Leu Lys Ser Val	Ile 100	Glu	Asn	Tyr	Glu 105	Asn	Lys	Ile	Lys	Asn 110	Ile	Glu			
Lys Leu Leu Lys	Thr 115	Lys	Asn	Gln	Lys 120	Thr	Ser	Glu	Asn 125	Glu	Asn	Lys			
Lys Ile Glu Ser	Ile 130	Glu	Lys 135	Lys	Ala	Lys	Lys	Tyr 140	Glu	Ile	Leu	Thr			
Asn Lys Leu Lys	Asn 145	Glu 150	Ile	Val	Glu	Ile	Lys 155	Lys	Leu	Leu	Asn 160	Lys			
Lys Ile Lys Pro	Lys 165	Glu	Asp	Glu	Asn 170	Tyr	Glu	Lys	Ile	Asn 175	Ile	Glu			
Asn Ile Glu Glu	Glu 180	Thr	Asp	Asp	Asp 185	Phe	Glu	Asp	Asn 190	Tyr	Glu	Tyr			
Asn Asp Glu Ile	Glu 195	Xaa	Thr	Asn 200	Glu	Asp	Asn	Tyr	Pro 205	Ser	Asn	Glu			
Gly Ile Ile Asn	Asn 210	Leu	Lys 215	Glu	Asn	Leu	Asn 220	Glu	Asn	Glu	Lys	Tyr			
Tyr Ala Ile Asn	Glu 225	Lys 230	Lys	Ile	Asp	Glu	Leu 235	Glu	Asp	Arg	Ile	Asn 240			
Glu Asn Glu Asn	Thr 245	Ile	Leu	Asp	Leu 250	Gln	Arg	Glu	Leu	Arg	Asn 255	Phe			
Lys Lys Lys Asp	Asn 260	Ser	Asp	Lys 265	Asn	Leu	Glu	Glu	Ile	Glu	Glu	Asn 270			
Leu Ser Ser Ile	Gly 275	Arg	Ile 280	Ile	Asn	Asp	Leu	Lys	Arg 285	Lys	Ile	Ser			
Ala Asn Glu Ala	Ile 290	Asn	Lys 295	Glu	Asn	Gln	Lys 300	Lys	Ile	Arg	Thr	Asp			
Lys His Lys Leu	Lys 305	Glu	Leu 310	Glu	Asp	Lys 315	Ile	Lys	Glu	Asn	Glu	Glu 320			
Thr Ile Leu Lys	Leu 325	Gln	Lys	Glu	Leu 330	Asn	Asn	Phe	Lys	Lys	Lys 335	Glu			
Ile Tyr Gln Lys	Pro 340	Leu	Asn	Glu	Glu 345	Thr	Phe	Thr	Pro 350	Ser	Ile	Thr			
Ser Lys Asn Asp	Asp 355	Leu	Glu	Glu 360	Asn	Lys	Lys	Leu	Lys 365	Lys	Glu	Tyr			

Leu Lys Pro Ile Glu Lys Lys Glu Ser Arg Asp Leu Glu Glu Asn Thr
 370 375 380

Lys Ser Thr Pro Lys Thr Thr Met Ile Lys Thr Ala Asp Phe Gln Ile
 385 390 395 400

Tyr Pro Asp Ile Tyr Leu Asn Asn Tyr Lys Phe Lys Glu Lys Gly Asp
 405 410 415

Gln Phe Ala Phe Lys Lys Glu Asn Thr Tyr Tyr Ile Glu Ile Asp Pro
 420 425 430

Thr Asn Asn Leu Asn Glu Ala Leu Lys Asn His Glu Ile Ile Ser Lys
 435 440 445

Tyr Lys Phe Glu Lys Tyr Phe Ile Asn Pro Ile Leu Lys Asn Lys Glu
 450 455 460

Glu Phe Phe Arg Asn Leu Ile Glu Val Lys Asn Ile His Glu Leu Gly
 465 470 475 480

Ile Met Tyr Lys Asn Leu Lys Pro Glu Phe Lys Gln Ile Lys Ile Ile
 485 490 495

Lys

<210> 33
 <211> 31
 <212> PRT
 <213> B. burgdorferi
 <220>
 <221> misc_feature
 <223> predicted coding region BB0148

<220>
 <221> misc_feature
 <223> gi|2688046

<400> 33

Met Pro Val Lys Lys Asn Ser Thr Lys Ile Lys Lys Lys Glu Thr Gln
 1 5 10 15

Ile Ala Ile Ala Leu Lys Ile Ile Ile Ile Tyr Phe Phe Asp
 20 25 30

<210> 34
 <211> 30
 <212> PRT
 <213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0150

<220>
<221> misc_feature
<223> gi|2688045

<400> 34

Met Phe Gly Cys Leu Arg Ile His Val Phe Lys Ile Tyr Phe Ile Phe
1 5 10 15
Leu Ile Ile His Tyr Ile Leu Phe Ser Ile Leu Leu Met Ile
20 25 30

<210> 35
<211> 344
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0212

<220>
<221> misc_feature
<223> gi|2688103

<400> 35

Met Met Lys Lys Ile Lys Ser Glu Ile Asn Leu Leu Lys Ile Glu Lys
1 5 10 15
Asp Lys Asn Leu Ile Glu Leu Gly Lys Ile Leu Lys Asn Asn Asn Ile
20 25 30
Val Glu Leu Lys Asn Leu Asn His Tyr Pro Asn Leu Lys Leu Val Glu
35 40 45
Lys Glu Leu Tyr Gln Met Lys Ser Asn Leu Ser Lys Ser Glu Glu Asn
50 55 60
Glu Asn Ile Leu Lys Asn Leu Asn Lys Lys Ile Tyr Ile Leu Lys Lys
65 70 75 80
Glu Tyr Lys Ser Thr Ser Lys Ser Tyr Lys Lys Asn Leu Lys Glu Ile
85 90 95
Ala Lys Thr Ile Ile Glu Ile Tyr Pro Gln Asn Leu Glu Leu Ile Ser

100	105	110
Lys Tyr Asn Met Asn Phe Ser	Lys Leu Lys Leu Glu	Lys Tyr Lys Lys
115	120	125
Ile Glu Leu Ala Ser Asp His	Lys Thr Lys Asn Tyr	Leu Gln Arg Ile
130	135	140
Met Leu Glu Val Ser Ser Thr	Ile Asn Asn Ile Ile	Asn Met Ile Asn
145	150	155
Val Tyr Lys Ile Ser Lys Glu Phe	Glu Lys Gln Val Phe Thr	Lys Tyr
165	170	175
Tyr Pro Ser Glu Asn Phe Glu Ser	Ile Met Asn Glu Phe Ser	Leu Asn
180	185	190
Lys Lys Leu Asn Asn Val Ile Val	Lys Glu Phe Lys Ile Ile	Asn Glu
195	200	205
Ile Lys Thr Asn Ile Lys Asn Ile	Lys Glu Glu Ile Lys Glu Ile Ile	
210	215	220
Ser Thr Ser Lys Lys Glu Lys Ile	Tyr Lys Lys Asn Thr Ile Lys Asn	
225	230	235
Glu Ile Asn Val Ile Thr Lys Asn	Lys Glu Asn Ile Leu Lys Lys Ile	
245	250	255
Ala Glu Glu Phe Ile Glu Ile Thr	Lys Lys Asp Lys Met Thr Ala Lys	
260	265	270
Thr Asn Ala Ile Ser Ser Ile Ile	Gln Lys Ile Glu Lys Ile Asn Gln	
275	280	285
Lys Ile Leu Asn Leu Asn Asn Asp	Leu Ile Lys Ile Thr Lys Gln Glu	
290	295	300
Glu Ile Lys Asn Ile Gln Gln Lys	Ile Gln Ala Leu Thr Lys Glu Lys	
305	310	315
Asn Lys Ile Asn Asn Lys Leu Asp	Ala Leu Thr Ser Lys Ile Glu Val	
325	330	335
Ile Gln Asn Glu Leu Asp Asn Glu		
340		

<210> 36
 <211> 30
 <212> PRT
 <213> B. burgdorferi

 <220>
 <221> misc_feature
 <223> predicted coding region BB0425

<220>
<221> misc_feature
<223> gi|2688333

<400> 36

Met Glu Asp Glu Arg Arg Glu Glu Leu Ser Lys Val Lys Ser Gln Lys
1 5 10 15

Asn Lys Gln Asn Leu Leu Ile Phe Leu Asn Lys Lys Ile Lys
20 25 30

<210> 37
<211> 32
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0433

<220>
<221> misc_feature
<223> gi|2688343

<400> 37

Met His Lys Phe Phe Lys Leu Ile Leu Lys Leu Phe Ser Phe Tyr Lys
1 5 10 15

Glu Ile Leu Gly Phe Lys Arg Arg Ala Lys Phe Ile Phe Cys Tyr Leu
20 25 30

<210> 38
<211> 38
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0520

<220>
<221> misc_feature
<223> gi|2688447

<400> 38

Met Ser Lys Ser Thr Lys Asn Thr Thr Lys Ser Lys Asn Asp Thr Lys
1 5 10 15

Asn Ile Leu Ile Asn Lys Lys Ile Lys Phe Phe Ile Leu Thr Lys Lys
20 25 30

Tyr Thr Arg Thr Phe Tyr
35

<210> 39

<211> 36

<212> PRT

<213> B. burgdorferi

<220>

<221> misc_feature

<223> predicted coding region BB0609

<220>

<221> misc_feature

<223> gi|2688540

<400> 39

Met Thr Met Ile Ile Ile Ile Phe Tyr Lys Tyr Leu Ile Pro Lys Ser
1 5 10 15

Ile Lys Asp Lys Asn Asn Lys Ser His Lys Thr Phe Ile Lys Lys Phe
20 25 30

Ile Ile Lys Tyr
35

<210> 40

<211> 31

<212> PRT

<213> B. burgdorferi

<220>

<221> misc_feature

<223> predicted coding region BB0822

<220>

<221> misc_feature

<223> gi|2688768

<400> 40

Met Pro Cys Gly Arg Lys Arg Lys Leu Lys Lys Ile Ser Thr His Lys
1 5 10 15

Arg Lys Lys Lys Arg Arg Lys Asn Arg His Lys Lys Lys Asn Lys
 20 25 30

<210> 41
 <211> 34
 <212> PRT
 <213> B. burgdorferi

<220>
 <221> misc_feature
 <223> predicted coding region BB0848

<220>
 <221> misc_feature
 <223> gi|2688793

<400> 41

Met Tyr Phe Cys Ile Ile Asp Leu Glu Phe Val Gly Val Leu Pro Tyr
 1 5 10 15

Phe Phe Ile Tyr Lys Phe Gly Glu Phe Tyr Phe Ser Phe Phe Gly Lys
 20 25 30

Trp Arg

<210> 42
 <211> 51
 <212> PRT
 <213> C. jejuni

<220>
 <221> misc_feature
 <223> highly acidic protein

<220>
 <221> misc_feature
 <223> gi|6967728

<400> 42

Met Ala Tyr Glu Asp Glu Glu Asp Leu Asn Tyr Asp Asp Tyr Glu Asn
 1 5 10 15

Glu Asp Glu Glu Tyr Pro Gln Asn His His Lys Asn Tyr Asn Tyr Asp
 20 25 30

Asp Asp Asp Tyr Glu Tyr Asp Asp Asp Asn Asn Asp Asp Asp Phe Tyr
 35 40 45

Glu Met Asp
50

<210> 43
<211> 41
<212> PRT
<213> C. jejuni

<220>
<221> misc_feature
<223> hypothetical protein Cj0344

<220>
<221> misc_feature
<223> gi|6967819

<400> 43

Met Phe Gln Asn Ile Ile Lys Tyr Lys Asp Phe Ile Ile Phe Ile Leu
1 5 10 15
Asn Leu Lys Gln Asn Leu Tyr Leu Leu Ile Lys Ile Asn Leu Asp Phe
20 25 30
Lys Asn Phe His Lys Ser Leu Asn Phe
35 40

<210> 44
<211> 37
<212> PRT
<213> C. jejuni

<220>
<221> misc_feature
<223> hypothetical protein Cj0567

<220>
<221> misc_feature
<223> gi|6968034

<400> 44

Met Asp Lys Ile Gln Glu Asn Thr Lys Ile Glu Lys Ala Ile Leu Ala
1 5 10 15
Glu Lys Gln Gln Ile Phe Leu Ile Gln Asn Lys Leu Ser Glu Ile Glu
20 25 30
Lys Asn Ile Lys Glu
35

<210> 45
 <211> 74
 <212> PRT
 <213> C. jejuni

 <220>
 <221> misc_feature
 <223> small hydrophobic protein

<220>
 <221> misc_feature
 <223> gi|6968265

<400> 45

Met Leu Glu Phe Ile Phe Thr Leu Ile Leu Asp Phe Thr Phe Tyr Ser
 1 5 10 15
 Ile Lys Thr Leu Glu Lys Val Phe Leu Gly Arg Thr Ala Leu Val Ile
 20 25 30
 Leu Phe Val Val Phe Ile Ala Leu Phe Cys Val Lys Gly Leu Phe Leu
 35 40 45
 Tyr Ile Leu Leu Ala Leu Glu Leu Phe Leu Leu Leu Tyr Leu Phe Leu
 50 55 60
 Gly Ile Leu Phe Leu Arg Phe Tyr Lys Ser
 65 70

<210> 46
 <211> 46
 <212> PRT
 <213> C. jejuni

<220>
 <221> misc_feature
 <223> very hypothetical protein Cj0974

<220>
 <221> misc_feature
 <223> gi|6968409

<400> 46

Met Leu Lys Met Ile Lys Ile Gln Lys Val Lys Ser Leu Leu Asp Leu
 1 5 10 15
 Val Lys Lys Leu Lys Asn Lys Gln Ser Leu Lys Ile Lys Asn Gln Thr
 20 25 30

Asn Thr Lys Glu Asn Leu Asn Lys Thr His Tyr Leu Thr Ile
 35 40 45

<210> 47
 <211> 78
 <212> PRT
 <213> C. jejuni

<220>
 <221> misc_feature
 <223> very hypothetical protein

<220>
 <221> misc_feature
 <223> gi|6968423

<400> 47

Met Leu Lys Ile Pro Tyr Phe Ser Phe Leu Lys Leu Asp Phe Glu Ile
 1 5 10 15
 Tyr His Leu Asn Thr Ser Lys Asn Phe Tyr Gly Phe Phe Ile Leu Tyr
 20 25 30
 Phe Ser Phe Phe Ile Phe Lys Leu Ile Tyr Lys Phe Ser Lys Ser Asn
 35 40 45
 Lys Lys Ile Tyr Lys Lys Ile Ile Lys Leu Lys Lys Ile Ile Lys Asp
 50 55 60
 Asn Lys Tyr Leu Ile Phe Leu Cys Tyr Ile Leu Ile Asn Ile
 65 70 75

<210> 48
 <211> 30
 <212> PRT
 <213> C. jejuni

<220>
 <221> misc_feature
 <223> hypothetical protein Cj0748

<220>
 <221> misc_feature
 <223> gi|6968200

<400> 48

Met Leu Glu Thr Leu Lys Lys Tyr Ala Glu Asn Gln Gly Ile Glu Asp
 1 5 10 15

Asn Tyr Pro Lys Lys Ile Tyr Asn Gln Lys Glu Lys Lys Pro
 20 25 30

<210> 49
 <211> 168
 <212> PRT
 <213> C. pneumoniae CWL029

<220>
 <221> misc_feature
 <223> CT670 hypothetical protein

<220>
 <221> misc_feature
 <223> gi|4377009

<400> 49

Met Ala Lys Tyr Pro Leu Glu Pro Val Leu Ala Ile Lys Lys Asp Arg
 1 5 10 15
 Val Asp Arg Ala Glu Lys Val Val Lys Glu Lys Arg Arg Leu Leu Glu
 20 25 30
 Ile Glu Gln Glu Lys Leu Arg Glu Lys Glu Ala Glu Arg Asp Lys Val
 35 40 45
 Lys Asn His Tyr Met Gln Lys Ile Gln Gln Leu Arg Asp Leu Leu Asp
 50 55 60
 Glu Gly Thr Thr Ser Asp Ala Val Leu Gln Ile Lys Ser Tyr Ile Lys
 65 70 75 80
 Val Val Ala Val Gln Leu Ser Glu Glu Glu Glu Lys Val Asn Lys Gln
 85 90 95
 Lys Glu Val Val Leu Ala Ala Ser Lys Glu Leu Glu Lys Ala Glu Val
 100 105 110
 Asn Leu Ala Lys Arg Arg Lys Glu Glu Glu Lys Thr Arg Leu His Lys
 115 120 125
 Glu Glu Trp Met Lys Glu Ala Leu Lys Glu Glu Ala Arg Ala Glu Glu
 130 135 140
 Lys Glu Gln Asp Glu Met Gly Gln Leu Leu Phe Gln Leu Arg Gln Lys
 145 150 155 160
 Lys Lys Arg Glu Ser Gly Gly Ser
 165

<210> 50
 <211> 444

<212> PRT
 <213> C. pneumoniae CWL029
 <220>
 <221> misc_feature
 <223> CT579 hypothetical protein

<220>
 <221> misc_feature
 <223> gi|4377120

<400> 50

Met	Thr	Ser	Gly	Val	Ser	Gly	Ser	Ser	Ser	Gln	Asp	Pro	Thr	Leu	Ala	1	5	10	15
Ala	Gln	Leu	Ala	Gln	Ser	Ser	Gln	Lys	Ala	Gly	Asn	Ala	Gln	Ser	Gly	20	25	30	
His	Asp	Thr	Lys	Asn	Val	Thr	Lys	Gln	Gly	Ala	Gln	Ala	Glu	Val	Ala	35	40	45	
Ala	Gly	Gly	Phe	Glu	Asp	Leu	Ile	Gln	Asp	Ala	Ser	Ala	Gln	Ser	Thr	50	55	60	
Gly	Lys	Lys	Glu	Ala	Thr	Ser	Ser	Thr	Thr	Lys	Ser	Ser	Lys	Gly	Glu	65	70	75	80
Lys	Ser	Glu	Lys	Ser	Gly	Lys	Ser	Lys	Ser	Ser	Thr	Ser	Val	Ala	Ser	85	90	95	
Ala	Ser	Glu	Thr	Ala	Thr	Ala	Gln	Ala	Val	Gln	Gly	Pro	Lys	Gly	Leu	100	105	110	
Arg	Gln	Asn	Asn	Tyr	Asp	Ser	Pro	Ser	Leu	Pro	Thr	Pro	Glu	Ala	Gln	115	120	125	
Thr	Ile	Asn	Gly	Ile	Val	Leu	Lys	Lys	Gly	Met	Gly	Thr	Leu	Ala	Leu	130	135	140	
Leu	Gly	Leu	Val	Met	Thr	Leu	Met	Ala	Asn	Ala	Ala	Gly	Glu	Ser	Trp	145	150	155	160
Lys	Ala	Ser	Phe	Gln	Ser	Gln	Asn	Gln	Ala	Ile	Arg	Ser	Gln	Val	Glu	165	170	175	
Ser	Ala	Pro	Ala	Ile	Gly	Glu	Ala	Ile	Lys	Arg	Gln	Ala	Asn	His	Gln	180	185	190	
Ala	Ser	Ala	Thr	Glu	Ala	Gln	Ala	Lys	Gln	Ser	Leu	Ile	Ser	Gly	Ile	195	200	205	
Val	Asn	Ile	Val	Gly	Phe	Thr	Val	Ser	Val	Gly	Ala	Gly	Ile	Phe	Ser				

1000
 900
 800
 700
 600
 500
 400
 300
 200
 100
 0

210	215	220
Ala Ala Lys Gly Ala Thr Ser Ala Leu Lys Ser Ala Ser Phe Ala Lys 225 230 235 240		
Glu Thr Gly Ala Ser Ala Ala Gly Gly Ala Ala Ser Lys Ala Leu Thr 245 250 255		
Ser Ala Ser Ser Ser Val Gln Gln Thr Met Ala Ser Thr Ala Lys Ala 260 265 270		
Ala Thr Thr Ala Ala Ser Ser Ala Gly Ser Ala Ala Thr Lys Ala Ala 275 280 285		
Ala Asn Leu Thr Asp Asp Met Ala Ala Ala Ala Ser Lys Met Ala Ser 290 295 300		
Asp Gly Ala Ser Lys Ala Ser Gly Gly Leu Phe Gly Glu Val Leu Asn 305 310 315 320		
Lys Pro Asn Trp Ser Glu Lys Val Ser Arg Gly Met Asn Val Val Lys 325 330 335		
Thr Gln Gly Ala Arg Val Ala Ser Phe Ala Gly Asn Ala Leu Ser Ser 340 345 350		
Ser Met Gln Met Ser Gln Leu Met His Gly Leu Thr Ala Ala Val Glu 355 360 365		
Gly Leu Ser Ala Gly Gln Thr Gly Ile Glu Val Ala His His Gln Arg 370 375 380		
Leu Ala Gly Gln Ala Glu Ala Gln Ala Glu Val Leu Lys Gln Met Ser 385 390 395 400		
Ser Val Tyr Gly Gln Gln Ala Gly Gln Ala Gly Gln Leu Gln Glu Gln 405 410 415		
Ala Met Gln Ser Phe Asn Thr Ala Leu Gln Thr Leu Gln Asn Ile Ala 420 425 430		
Asp Ser Gln Thr Gln Thr Thr Ser Ala Ile Phe Asn 435 440		

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 <212> PRT
 <213> C. pneumoniae CWL029

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 <223> CT578 hypothetical protein

 <220>

<221> misc_feature
<223> gi|4377121

<400> 51

Met Ser Ile Ser Ser Ser Ser Gly Pro Asp Asn Gln Lys Asn Ile Met
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Ser Gln Val Leu Thr Ser Thr Pro Gln Gly Val Pro Gln Gln Asp Lys
20 25 30
Leu Ser Gly Asn Glu Thr Lys Gln Ile Gln Gln Thr Arg Gln Gly Lys
35 40 45
Asn Thr Glu Met Glu Ser Asp Ala Thr Ile Ala Gly Ala Ser Gly Lys
50 55 60
Asp Lys Thr Ser Ser Thr Thr Lys Thr Glu Thr Ala Pro Gln Gln Gly
65 70 75 80
Val Ala Ala Gly Lys Glu Ser Ser Glu Ser Gln Lys Ala Gly Ala Asp
85 90 95
Thr Gly Val Ser Gly Ala Ala Ala Thr Thr Ala Ser Asn Thr Ala Thr
100 105 110
Lys Ile Ala Met Gln Thr Ser Ile Glu Glu Ala Ser Lys Ser Met Glu
115 120 125
Ser Thr Leu Glu Ser Leu Gln Ser Leu Ser Ala Ala Gln Met Lys Glu
130 135 140
Val Glu Ala Val Val Val Ala Ala Leu Ser Gly Lys Ser Ser Gly Ser
145 150 155 160
Ala Lys Leu Glu Thr Pro Glu Leu Pro Lys Pro Gly Val Thr Pro Arg
165 170 175
Ser Glu Val Ile Glu Ile Gly Leu Ala Leu Ala Lys Ala Ile Gln Thr
180 185 190
Leu Gly Glu Ala Thr Lys Ser Ala Leu Ser Asn Tyr Ala Ser Thr Gln
195 200 205
Ala Gln Ala Asp Gln Thr Asn Lys Leu Gly Leu Glu Lys Gln Ala Ile
210 215 220
Lys Ile Asp Lys Glu Arg Glu Glu Tyr Gln Glu Met Lys Ala Ala Glu
225 230 235 240
Gln Lys Ser Lys Asp Leu Glu Gly Thr Met Asp Thr Val Asn Thr Val
245 250 255
Met Ile Ala Val Ser Val Ala Ile Thr Val Ile Ser Ile Val Ala Ala

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      260              265              270
Ile Phe Thr Cys Gly Ala Gly Leu Ala Gly Leu Ala Ala Gly Ala Ala
  275              280              285

Val Gly Ala Ala Ala Ala Gly Gly Ala Ala Gly Ala Ala Ala Ala Thr
  290              295              300

Thr Val Ala Thr Gln Ile Thr Val Gln Ala Val Val Gln Ala Val Lys
  305              310              315              320

Gln Ala Val Ile Thr Ala Val Arg Gln Ala Ile Thr Ala Ala Ile Lys
  325              330              335

Ala Ala Val Lys Ser Gly Ile Lys Ala Phe Ile Lys Thr Leu Val Lys
  340              345              350

Ala Ile Ala Lys Ala Ile Ser Lys Gly Ile Ser Lys Val Phe Ala Lys
  355              360              365

Gly Thr Gln Met Ile Ala Lys Asn Phe Pro Lys Leu Ser Lys Val Ile
  370              375              380

Ser Ser Leu Thr Ser Lys Trp Val Thr Val Gly Val Gly Val Val Val
  385              390              395              400

Ala Ala Pro Ala Leu Gly Lys Gly Ile Met Gln Met Gln Leu Ser Glu
  405              410              415

Met Gln Gln Asn Val Ala Gln Phe Gln Lys Glu Val Gly Lys Leu Gln
  420              425              430

Ala Ala Ala Asp Met Ile Ser Met Phe Thr Gln Phe Trp Gln Gln Ala
  435              440              445

Ser Lys Ile Ala Ser Lys Gln Thr Gly Glu Ser Asn Glu Met Thr Gln
  450              455              460

Lys Ala Thr Lys Leu Gly Ala Gln Ile Leu Lys Ala Tyr Ala Ala Ile
  465              470              475              480

Ser Gly Ala Ile Ala Gly Ala His Lys Thr Asn Asn Phe
  485              490

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<210> 52

<211> 76

<212> PRT

<213> C. pneumoniae CWL029

<220>

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<223> CT753 hypothetical protein

<220>

<221> misc_feature

<223> gi|4377216

<400> 52

Met Arg Asn Met Glu Ala Lys Lys Ile Lys Glu Leu Ser Lys Glu Ala
1 5 10 15
Gln Leu Leu Lys Lys Leu Arg Glu Lys Ser Arg Val Leu Asp Glu Lys
20 25 30
Asn Lys Arg Lys Ala Trp Val Ala Lys Leu Val Ala Met Pro Glu Ser
35 40 45
Ile Arg Glu Ile Glu Lys Glu Glu Arg Val Glu Thr Pro Gln Leu Phe
50 55 60
Gln Ala Ile Ala Glu Lys Ile Leu Glu Glu Gly Val
65 70 75

<210> 53

<211> 755

<212> PRT

<213> C. pneumoniae CWL029

<220>

<221> misc_feature

<223> CT456 hypothetical protein

<220>

<221> misc_feature

<223> gi|4376866

<400> 53

Met Ala Ala Pro Ile Asn Gln Pro Ser Thr Thr Thr Gln Ile Thr Gln
1 5 10 15
Thr Gly Gln Thr Thr Thr Thr Thr Thr Val Gly Ser Leu Gly Glu His
20 25 30
Ser Val Thr Thr Thr Gly Ser Gly Ala Ala Ala Gln Thr Ser Gln Thr
35 40 45
Val Thr Leu Ile Ala Asp His Glu Met Gln Glu Ile Ala Ser Gln Asp
50 55 60
Gly Ser Ala Val Ser Phe Ser Ala Glu His Ser Phe Ser Thr Leu Pro
65 70 75 80
Pro Glu Thr Gly Ser Val Gly Ala Thr Ala Gln Ser Ala Gln Ser Ala
85 90 95

Gly	Leu	Phe	Ser	Leu	Ser	Gly	Arg	Thr	Gln	Arg	Arg	Asp	Ser	Glu	Ile	
			100					105					110			
Ser	Ser	Ser	Ser	Asp	Gly	Ser	Ser	Ile	Ser	Arg	Thr	Ser	Ser	Asn	Ala	
			115					120				125				
Ser	Ser	Gly	Glu	Thr	Ser	Arg	Ala	Glu	Ser	Ser	Pro	Asp	Leu	Gly	Asp	
			130				135				140					
Leu	Asp	Ser	Leu	Ser	Gly	Ser	Glu	Arg	Ala	Glu	Gly	Ala	Glu	Gly	Pro	
145					150					155					160	
Glu	Gly	Pro	Gly	Gly	Leu	Pro	Glu	Ser	Thr	Ile	Pro	His	Tyr	Asp	Pro	
				165					170					175		
Thr	Asp	Lys	Ala	Ser	Ile	Leu	Asn	Phe	Leu	Lys	Asn	Pro	Ala	Val	Gln	
			180					185					190			
Gln	Lys	Met	Gln	Thr	Lys	Gly	Gly	His	Phe	Val	Tyr	Val	Asp	Glu	Ala	
			195				200					205				
Arg	Ser	Ser	Phe	Ile	Phe	Val	Arg	Asn	Gly	Asp	Trp	Ser	Thr	Ala	Glu	
			210				215				220					
Ser	Ile	Lys	Val	Ser	Asn	Ala	Lys	Thr	Lys	Glu	Asn	Ile	Thr	Lys	Pro	
225					230					235					240	
Ala	Asp	Leu	Glu	Met	Cys	Ile	Ala	Lys	Phe	Cys	Val	Gly	Tyr	Glu	Thr	
				245					250					255		
Ile	His	Ser	Asp	Trp	Thr	Gly	Arg	Val	Lys	Pro	Thr	Met	Glu	Glu	Arg	
			260					265					270			
Ser	Gly	Ala	Thr	Gly	Asn	Tyr	Asn	His	Leu	Met	Leu	Ser	Met	Lys	Phe	
			275				280					285				
Lys	Thr	Ala	Val	Val	Tyr	Gly	Pro	Trp	Asn	Ala	Lys	Glu	Ser	Ser	Ser	
			290				295				300					
Gly	Tyr	Thr	Pro	Ser	Ala	Trp	Arg	Arg	Gly	Ala	Lys	Val	Glu	Thr	Gly	
305					310					315					320	
Pro	Ile	Trp	Asp	Asp	Val	Gly	Gly	Leu	Lys	Gly	Ile	Asn	Trp	Lys	Thr	
				325					330					335		
Thr	Pro	Ala	Pro	Asp	Phe	Ser	Phe	Ile	Asn	Glu	Thr	Pro	Gly	Gly	Gly	
			340					345					350			
Ala	His	Ser	Thr	Ser	His	Thr	Gly	Pro	Gly	Thr	Pro	Val	Gly	Ala	Thr	
			355				360					365				
Val	Val	Pro	Asn	Val	Asn	Val	Asn	Leu	Gly	Gly	Ile	Lys	Val	Asp	Leu	
			370			375					380					

Gly	Gly	Ile	Asn	Leu	Gly	Gly	Ile	Thr	Thr	Asn	Val	Thr	Thr	Glu	Glu
385					390					395				400	
Gly	Gly	Gly	Thr	Asn	Ile	Thr	Ser	Thr	Lys	Ser	Thr	Ser	Thr	Asp	Asp
			405						410					415	
Lys	Val	Ser	Ile	Thr	Ser	Thr	Gly	Ser	Gln	Ser	Thr	Ile	Glu	Glu	Asp
		420					425						430		
Thr	Ile	Gln	Phe	Asp	Asp	Pro	Gly	Gln	Gly	Glu	Asp	Asp	Asn	Ala	Ile
		435					440					445			
Pro	Gly	Thr	Asn	Thr	Pro	Pro	Pro	Pro	Gly	Pro	Pro	Pro	Asn	Leu	Ser
	450					455					460				
Ser	Ser	Arg	Leu	Leu	Thr	Ile	Ser	Asn	Ala	Ser	Leu	Asn	Gln	Val	Leu
465					470					475					480
Gln	Asn	Val	Arg	Gln	His	Leu	Asn	Thr	Ala	Tyr	Asp	Ser	Asn	Gly	Asn
				485					490					495	
Ser	Val	Ser	Asp	Leu	Asn	Gln	Asp	Leu	Gly	Gln	Val	Val	Lys	Asn	Ser
			500					505					510		
Glu	Asn	Gly	Val	Asn	Phe	Pro	Thr	Val	Ile	Leu	Pro	Lys	Thr	Thr	Gly
		515					520					525			
Asp	Thr	Asp	Pro	Ser	Gly	Gln	Ala	Thr	Gly	Gly	Val	Thr	Glu	Gly	Gly
	530					535					540				
Gly	His	Ile	Arg	Asn	Ile	Ile	Gln	Arg	Asn	Thr	Gln	Ser	Thr	Gly	Gln
545					550					555					560
Ser	Glu	Gly	Ala	Thr	Pro	Thr	Pro	Gln	Pro	Thr	Ile	Ala	Lys	Ile	Val
				565					570					575	
Thr	Ser	Leu	Arg	Lys	Ala	Asn	Val	Ser	Ser	Ser	Ser	Val	Leu	Pro	Gln
			580					585					590		
Pro	Gln	Val	Ala	Thr	Thr	Ile	Thr	Pro	Gln	Ala	Arg	Thr	Ala	Ser	Thr
		595					600					605			
Ser	Thr	Thr	Ser	Ile	Gly	Thr	Gly	Thr	Glu	Ser	Thr	Ser	Thr	Thr	Ser
	610					615					620				
Thr	Gly	Thr	Gly	Thr	Gly	Ser	Val	Ser	Thr	Gln	Ser	Thr	Gly	Val	Gly
625					630					635					640
Thr	Pro	Thr	Thr	Thr	Thr	Arg	Ser	Thr	Gly	Thr	Ser	Ala	Thr	Thr	Thr
				645					650					655	
Thr	Ser	Ser	Ala	Ser	Thr	Gln	Thr	Pro	Gln	Ala	Pro	Leu	Pro	Ser	Gly
			660					665					670		
Thr	Arg	His	Val	Ala	Thr	Ile	Ser	Leu	Val	Arg	Asn	Ala	Ala	Gly	Arg

675 680 685
 Ser Ile Val Leu Gln Gln Gly Gly Arg Ser Gln Ser Phe Pro Ile Pro
 690 695 700
 Pro Ser Gly Thr Gly Thr Gln Asn Met Gly Ala Gln Leu Trp Ala Ala
 705 710 715 720
 Ala Ser Gln Val Ala Ser Thr Leu Gly Gln Val Val Asn Gln Ala Ala
 725 730 735
 Thr Ala Gly Ser Gln Pro Ser Ser Arg Arg Ser Ser Pro Thr Ser Pro
 740 745 750
 Arg Arg Lys
 755

<210> 54
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 <212> PRT
 <213> C. pneumoniae CWL029

<220>
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 <223> SET Domain protein

<220>
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 <223> gi|4377196

<400> 54

Met Ser Thr Val Thr Thr Glu Pro Cys Ser Ser Ile His Ile Ser Leu
 1 5 10 15
 Asn Asn Asp Trp Arg Asp Ser Gln Pro Tyr Ser Leu Asp Arg Ala Ser
 20 25 30
 Glu Leu Leu His Phe Arg Phe Leu Pro Ser Leu Val Phe Ser Asn Trp
 35 40 45
 Lys Val Glu Gln Gln Ile Glu Thr Leu Cys His Lys Ser Glu Lys Arg
 50 55 60
 Arg Leu Ile Ser Pro Leu Ala Lys Trp Leu Gly Lys Leu His Lys Gln
 65 70 75 80
 Asp Leu Leu Cys Pro Pro Ala Pro Pro Val Ser Val Cys Trp Ile Asn
 85 90 95
 Ala His Val Gly Tyr Gly Val Phe Ala Arg Asp Glu Ile Ala Pro Trp
 100 105 110

Thr Tyr Ile Gly Glu Tyr Thr Gly Ile Leu Arg His Arg Gln Ala Ile
 115 120 125
 Trp Met Asp Glu Asn Asp Tyr Cys Phe Arg Tyr Pro Met Pro Leu Phe
 130 135 140
 Thr Leu Arg Tyr Phe Thr Ile Asp Ser Gly Lys Gln Gly Asn Val Thr
 145 150 155 160
 Arg Phe Ile Asn His Ser Glu Gln Pro Asn Ala Glu Ala Ile Gly Val
 165 170 175
 Phe Ser Glu Gly Leu Phe His Val Ile Ile Arg Thr Val Ala Pro Ile
 180 185 190
 Tyr Ala Gly Gln Glu Ile Cys Tyr His Tyr Gly Pro Leu Tyr Trp Lys
 195 200 205
 His Arg Lys Lys Arg Glu Glu Phe Ile Pro Glu Glu Glu
 210 215 220

<210> 55
 <211> 98
 <212> PRT
 <213> C. pneumoniae CWL029

<220>
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 <223> hypothetical protein

<220>
 <221> misc_feature
 <223> gi|4376483

<400> 55

Met Ser Tyr Pro Asp Ile Ser Asn Val Gln Ala Ser Ser Ile Gln Ser
 1 5 10 15
 Ala Leu Leu His Lys Thr Ser Asp Gln Ile Gln Gln Lys Arg Cys Phe
 20 25 30
 Lys Gln Ser Thr Phe Val Ile Leu Ala Val Ser Leu Val Ile Ile Gly
 35 40 45
 Ser Leu Phe Leu Leu Ala Gly Val Ala Ile Leu Thr Val Phe Ser His
 50 55 60
 Gly Val Leu Ser Leu Val Phe Gly Val Leu Gly Ile Val Leu Gly Leu
 65 70 75 80
 Leu Leu Leu Ala Gly Gly Val Gly Leu Leu Val Glu Glu Ala Lys Ser
 85 90 95

Leu Leu

<210> 56
<211> 64
<212> PRT
<213> C. pneumoniae CWL029

<220>
<221> misc_feature
<223> CT382.1 hypothetical protein

<220>
<221> misc_feature
<223> gi|4376770

<400> 56

Met Ile Lys Gln Ala Cys Lys Phe Tyr Leu Leu Gln Cys Leu Leu Cys
1 5 10 15
Ala Leu Tyr Trp Leu Leu Lys Tyr Cys Arg Lys Leu Leu Lys Gly Thr
20 25 30
Leu His His Ser Glu Glu Thr Leu Tyr Gln Ala Leu Leu Ser Ser Leu
35 40 45
Ile Asp Leu Leu Tyr Gln Leu Lys Gln Leu Pro Ala Pro Thr Asn Glu
50 55 60

<210> 57
<211> 50
<212> PRT
<213> C. pneumoniae CWL029

<220>
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<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|4376779

<400> 57

Met Arg Thr Tyr Thr Arg Ser Pro Lys Gln Ser Gly Val Glu Arg Lys
1 5 10 15
Gln Glu Asp Ala Glu Thr Ser Phe Ile Glu Thr Pro Lys Gly Ile Leu
20 25 30

Lys Lys Pro Gly Asn Lys Asp Pro Lys Gly Lys His Val His Trp Lys
 35 40 45

Asp Ser
 50

<210> 58
 <211> 775
 <212> PRT
 <213> C. pneumoniae CWL029

<220>
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 <223> hypothetical protein

<220>
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 <223> gi|4376756

<400> 58

Met Ala Ser Gly Ile Gly Gly Ser Ser Gly Leu Gly Lys Ile Pro Pro
 1 5 10 15

Lys Asp Asn Gly Asp Arg Ser Arg Ser Pro Ser Pro Lys Gly Glu Leu
 20 25 30

Gly Ser His Glu Ile Ser Leu Pro Pro Gln Glu His Gly Glu Glu Gly
 35 40 45

Ala Ser Gly Ser Ser His Ile His Ser Ser Ser Ser Phe Leu Pro Glu
 50 55 60

Asp Gln Glu Ser Gln Ser Ser Ser Ser Ala Ala Ser Ser Pro Gly Phe
 65 70 75 80

Phe Ser Arg Val Arg Ser Gly Val Asp Arg Ala Leu Lys Ser Phe Gly
 85 90 95

Asn Phe Phe Ser Ala Glu Ser Thr Ser Gln Ala Arg Glu Thr Arg Gln
 100 105 110

Ala Phe Val Arg Leu Ser Lys Thr Ile Thr Ala Asp Glu Arg Arg Asp
 115 120 125

Val Asp Ser Ser Ser Ala Ala Ala Thr Glu Ala Arg Val Ala Glu Asp
 130 135 140

Ala Ser Val Ser Gly Glu Asn Pro Ser Gln Gly Val Pro Glu Thr Ser
 145 150 155 160

Ser Gly Pro Glu Pro Gln Arg Leu Phe Ser Leu Pro Ser Val Lys Lys

Lys His Gly Ala Lys Thr Lys Glu Ser Ser Glu Ser Ser Thr Pro Glu
465 470 475 480

Ile Ser Ile Ser Ala Pro Ile Val Arg Gly Trp Ser Gln Asp Ser Ser
485 490 495

Val Ser Phe Ile Val Met Glu Asp Asp His Ile Phe Tyr Asp Val Pro
500 505 510

Arg Arg Lys Asp Gly Ile Tyr Asp Val Pro Ser Ser Pro Arg Trp Ser
515 520 525

Pro Ala Arg Glu Leu Glu Glu Asp Val Phe Gly Asp Tyr Glu Val Pro
530 535 540

Ile Thr Ser Ala Glu Pro Ser Lys Asp Lys Asn Ile Tyr Met Thr Pro
545 550 555 560

Arg Leu Ala Thr Pro Ala Ile Tyr Asp Leu Pro Ser Arg Pro Gly Ser
565 570 575

Ser Gly Ser Ser Arg Ser Pro Ser Ser Asp Arg Val Arg Ser Ser Ser
580 585 590

Pro Asn Arg Arg Gly Val Pro Leu Pro Pro Val Pro Ser Pro Ala Met
595 600 605

Ser Glu Glu Gly Ser Ile Tyr Glu Asp Met Ser Gly Ala Ser Gly Ala
610 615 620

Gly Glu Ser Asp Tyr Glu Asp Met Ser Arg Ser Pro Ser Pro Arg Gly
625 630 635 640

Asp Leu Asp Glu Pro Ile Tyr Ala Asn Thr Pro Glu Asp Asn Pro Phe
645 650 655

Thr Gln Arg Asn Ile Asp Arg Ile Leu Gln Glu Arg Ser Gly Gly Ala
660 665 670

Ser Ala Ser Pro Val Glu Pro Ile Tyr Asp Glu Ile Pro Trp Ile His
675 680 685

Gly Arg Pro Pro Ala Thr Leu Pro Arg Pro Glu Asn Thr Leu Thr Asn
690 695 700

Val Ser Leu Arg Val Ser Pro Gly Phe Gly Pro Glu Val Arg Ala Ala
705 710 715 720

Leu Leu Ser Glu Ser Val Ser Ala Val Met Val Glu Ala Glu Ser Ile
725 730 735

Val Pro Pro Thr Glu Pro Gly Asp Gly Glu Ser Glu Tyr Leu Glu Pro
740 745 750

Leu Gly Gly Leu Val Ala Thr Thr Lys Ile Leu Leu Gln Lys Gly Trp
755 760 765

Pro Arg Gly Glu Ser Asn Ala
770 775

<210> 59
<211> 104
<212> PRT
<213> C. trachomatis

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|3328515

<400> 59

Met Gly Asp Val Met Ile Gln Ser Val Lys Thr Glu Ser Gly Leu Val
1 5 10 15
Glu Gly His Arg Gly Ile Cys Asp Ser Leu Gly Arg Val Val Gly Ala
20 25 30
Leu Ala Lys Val Ala Lys Leu Val Val Ala Leu Ala Ala Leu Val Leu
35 40 45
Asn Gly Ala Leu Cys Val Leu Ser Leu Val Ala Leu Cys Val Gly Ala
50 55 60
Thr Pro Val Gly Pro Leu Ala Val Leu Val Ala Thr Thr Leu Ala Ser
65 70 75 80
Phe Leu Cys Ala Ala Cys Val Leu Phe Ile Ala Ala Lys Asp Arg Gly
85 90 95
Trp Ile Ala Ser Thr Asn Lys Cys
100

<210> 60
<211> 439
<212> PRT
<213> C. trachomatis

<220>
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<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|3329021

<400> 60

Met Thr Thr Gly Val Arg Gly Asp Asn Ala Pro Asp Pro Ser Leu Leu
1 5 10 15
Ala Gln Leu Thr Gln Asn Ala Asn Ser Ala Ser Ala Ala Ser Thr Gly
20 25 30
Lys Asn Gly Gln Val Ala Gly Ala Lys Gln Glu Asn Val Asp Ala Ser
35 40 45
Phe Glu Asp Leu Leu Gln Asp Ala Gln Gly Thr Gly Gly Ser Lys Lys
50 55 60
Ala Thr Ala Asn Gln Thr Ser Lys Ser Gly Lys Ser Glu Lys Ala Gln
65 70 75 80
Ala Ser Ser Gly Thr Ser Thr Thr Thr Ser Val Ala Gln Ala Ser Gln
85 90 95
Thr Ala Thr Ala Gln Ala Val His Gly Ala Arg Asp Ser Gly Phe Asn
100 105 110
Ser Asp Gly Ser Ala Thr Leu Pro Ser Pro Thr Gly Thr Glu Val Asn
115 120 125
Gly Val Val Leu Arg Lys Gly Met Gly Thr Leu Ala Leu Met Gly Leu
130 135 140
Ile Met Thr Leu Leu Ala Gln Ala Ser Ala Lys Ser Trp Ser Ser Ser
145 150 155 160
Phe Gln Gln Gln Asn Gln Ala Ile Gln Asn Gln Val Ala Met Ala Pro
165 170 175
Glu Ile Gly Asn Ala Ile Arg Thr Gln Ala Asn His Gln Ala Gln Ala
180 185 190
Thr Glu Leu Gln Ala Gln Gln Ser Leu Ile Ser Gly Ile Thr Asn Ile
195 200 205
Val Gly Phe Ala Val Ser Val Gly Gly Gly Ile Leu Ser Ala Ser Lys
210 215 220
Ser Leu Gly Gly Leu Lys Ser Ala Ala Phe Thr Asn Glu Thr Ala Ser
225 230 235 240
Ala Thr Thr Ser Ala Thr Ser Ser Leu Ala Lys Thr Ala Thr Ser Ala
245 250 255
Leu Asp Asp Val Ala Gly Thr Ala Thr Ala Val Gly Ala Lys Ala Thr

260							265					270				
Ser	Gly	Ala	Ala	Ser	Ala	Ala	Ser	Ser	Ala	Ala	Thr	Lys	Leu	Thr	Gln	
275							280					285				
Asn	Met	Ala	Glu	Ser	Ala	Ser	Lys	Thr	Leu	Ser	Gln	Thr	Ala	Ser	Lys	
290							295					300				
Ser	Ala	Gly	Gly	Leu	Phe	Gly	Gln	Ala	Leu	Asn	Thr	Pro	Ser	Trp	Ser	
305							310					315				
Glu	Lys	Val	Ser	Arg	Gly	Met	Asn	Val	Val	Lys	Thr	Gln	Gly	Thr	Arg	
325							330					335				
Ala	Ala	Lys	Phe	Ala	Gly	Arg	Ala	Leu	Ser	Ser	Ala	Met	Asn	Ile	Ser	
340							345					350				
Gln	Met	Val	His	Gly	Leu	Thr	Ala	Gly	Ile	Asp	Gly	Ile	Val	Gly	Gly	
355							360					365				
Val	Ile	Gly	Ala	Gln	Val	Ala	Gln	Glu	Gln	Arg	Met	Ala	Gly	Met	Ala	
370							375					380				
Glu	Ala	Arg	Ala	Glu	Glu	Leu	Lys	Ser	Leu	Asn	Ser	Val	Gln	Ala	Gln	
385							390					395				
Tyr	Ala	Ser	Gln	Ala	Gln	Gln	Leu	Gln	Glu	Gln	Ser	Gln	Gln	Ser	Phe	
405							410					415				
Asn	Ser	Ala	Leu	Gln	Thr	Leu	Gln	Ser	Ile	Ser	Asp	Ser	Ala	Leu	Gln	
420							425					430				
Thr	Thr	Ala	Ser	Met	Phe	Asn										
435																

<210> 61
 <211> 168
 <212> PRT
 <213> C. trachomatis

 <220>
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 <223> hypothetical protein

<220>
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 <223> gi|3329121

<400> 61

Met	Val	Arg	Tyr	Pro	Leu	Glu	Pro	Val	Leu	Ser	Ile	Lys	Lys	Asp	Arg
1				5					10					15	

Val Asp Arg Ala Glu Lys Val Val Lys Glu Lys Arg Arg Leu Leu Glu
 20 25 30
 Leu Glu Gln Glu Lys Leu Arg Glu Arg Glu Ser Glu Arg Asp Lys Val
 35 40 45
 Lys Asn His Tyr Met Gln Lys Ile Arg Gln Leu Arg Glu Gln Leu Asp
 50 55 60
 Asp Gly Thr Thr Ser Asp Ala Ile Leu Lys Met Lys Ala Tyr Ile Lys
 65 70 75 80
 Val Val Ala Ile Gln Leu Ser Glu Glu Glu Glu Lys Val Asn Lys Gln
 85 90 95
 Lys Glu Asn Val Leu Ala Ala Ser Lys Glu Leu Glu Arg Ala Glu Val
 100 105 110
 Glu Leu Thr Lys Arg Arg Lys Glu Glu Glu Lys Thr Arg Leu His Lys
 115 120 125
 Glu Glu Trp Met Lys Glu Ala Leu Lys Glu Glu Ala Arg Gln Glu Glu
 130 135 140
 Lys Glu Gln Asp Glu Met Gly Gln Leu Leu His Gln Leu His Lys Gln
 145 150 155 160
 Lys Gln Arg Glu Ser Gly Glu Asn
 165

<210> 62
 <211> 819
 <212> PRT
 <213> H. influenzae

<220>
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 <223> conserved hypothetical protein

<220>
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<400> 62

Met Ala Asp Val Leu Ser Arg Phe Asn Ser Gly Lys Leu Trp Asp Phe
 1 5 10 15
 Lys Gly Gly Ile His Pro Pro Glu Met Lys Ser Gln Ser Asn Ser Gln
 20 25 30
 Pro Leu Arg His Leu Pro Leu Gly Thr Asp Phe Tyr Ile Pro Leu Lys
 35 40 45

Gln	His	Leu	Gly	Thr	Thr	Gly	Asn	Leu	Leu	Ile	Lys	Glu	Gly	Asp	Tyr		
50						55					60						
Val	Leu	Lys	Gly	Gln	Ala	Leu	Thr	Lys	Gly	Asp	Gly	Leu	Arg	Met	Leu		
65					70					75					80		
Pro	Val	His	Ala	Pro	Thr	Ser	Gly	Thr	Ile	Lys	Ser	Ile	Lys	Pro	Tyr		
				85					90					95			
Val	Ala	Thr	His	Pro	Ser	Gly	Leu	Asp	Glu	Pro	Thr	Ile	His	Leu	Gln		
			100					105					110				
Ala	Asp	Gly	Leu	Asp	Gln	Trp	Ile	Glu	Arg	Asn	Pro	Ile	Asp	Asp	Phe		
		115					120					125					
Ser	Thr	Leu	Ser	Ser	Glu	Gln	Leu	Ile	His	Lys	Ile	Tyr	Gln	Ala	Gly		
	130					135						140					
Ile	Ala	Gly	Leu	Gly	Gly	Ala	Val	Phe	Pro	Thr	Ala	Ala	Lys	Ile	Gln		
145					150					155					160		
Ser	Ala	Glu	Gln	Lys	Val	Lys	Leu	Leu	Ile	Ile	Asn	Gly	Ala	Glu	Cys		
				165					170					175			
Glu	Pro	Tyr	Ile	Thr	Cys	Asp	Asp	Arg	Leu	Met	Arg	Glu	Arg	Ala	Asp		
			180					185					190				
Glu	Ile	Ile	Lys	Gly	Ile	Arg	Ile	Leu	Arg	Tyr	Ile	Leu	His	Pro	Glu		
	195						200					205					
Lys	Val	Val	Ile	Ala	Ile	Glu	Asp	Asn	Lys	Pro	Glu	Ala	Ile	Ser	Ala		
	210					215					220						
Ile	Arg	Asn	Ala	Leu	Gln	Gly	Ala	Asn	Asp	Ile	Ser	Ile	Arg	Val	Ile		
225					230					235					240		
Pro	Thr	Lys	Tyr	Pro	Ser	Gly	Ala	Thr	Lys	Gln	Leu	Ile	Tyr	Leu	Leu		
				245					250					255			
Thr	Gly	Ile	Glu	Val	Pro	Ser	Gly	Glu	Arg	Ser	Ser	Ser	Ile	Gly	Val		
		260						265					270				
Leu	Met	Gln	Asn	Val	Gly	Thr	Met	Phe	Ala	Ile	Lys	Arg	Ala	Ile	Ile		
	275						280					285					
Asn	Asp	Glu	Pro	Leu	Ile	Glu	Arg	Val	Val	Thr	Leu	Thr	Gly	Asn	Lys		
	290					295					300						
Ile	Ala	Glu	Lys	Gly	Asn	Tyr	Trp	Val	Arg	Leu	Gly	Thr	Pro	Ile	Ser		
305					310					315					320		
Gln	Ile	Leu	Ser	Asp	Ala	Gly	Tyr	Gln	Phe	Asp	Lys	His	Phe	Pro	Ile		
				325					330					335			

Phe Ala Gly Gly Pro Met Met Gly Leu Glu Leu Pro Asn Leu Asn Ala
340 345 350
Pro Val Thr Lys Leu Val Asn Cys Leu Leu Ala Pro Asp Tyr Leu Glu
355 360 365
Tyr Ala Glu Pro Glu Ala Glu Gln Ala Cys Ile Arg Cys Ser Ser Cys
370 375 380
Ser Asp Ala Cys Pro Val Asn Leu Met Pro Gln Gln Leu Tyr Trp Phe
385 390 395 400
Ala Arg Ser Glu Asp His Lys Lys Ser Glu Glu Tyr Ala Leu Lys Asp
405 410 415
Cys Ile Glu Cys Gly Ile Cys Ala Tyr Val Cys Pro Ser His Ile Pro
420 425 430
Leu Ile Gln Tyr Phe Arg Gln Glu Lys Ala Lys Ile Trp Gln Ile Lys
435 440 445
Glu Lys Gln Lys Lys Ser Asp Glu Ala Lys Ile Arg Phe Glu Ala Lys
450 455 460
Gln Ala Arg Met Glu Arg Glu Glu Gln Glu Arg Lys Ala Arg Ser Gln
465 470 475 480
Arg Ala Ala Gln Ala Arg Arg Glu Glu Leu Ala Gln Thr Lys Gly Glu
485 490 495
Asp Pro Val Lys Ala Ala Leu Glu Arg Leu Lys Ala Lys Lys Ala Asn
500 505 510
Glu Thr Glu Ser Thr Gln Ile Lys Thr Leu Thr Ser Glu Lys Gly Glu
515 520 525
Val Leu Pro Asp Asn Thr Asp Leu Met Ala Gln Arg Lys Ala Arg Arg
530 535 540
Leu Ala Arg Gln Gln Ala Ala Ser Gln Val Glu Asn Gln Glu Gln Gln
545 550 555 560
Thr Gln Pro Thr Asn Ala Lys Lys Ala Ala Val Ala Ala Ala Leu Ala
565 570 575
Arg Ala Lys Ala Lys Lys Leu Ala Gln Ala Asn Ser Thr Ser Glu Ala
580 585 590
Ile Ser Asn Ser Gln Thr Ala Glu Asn Gln Val Glu Lys Thr Lys Ser
595 600 605
Ala Val Glu Lys Thr Gln Glu Asn Ser Thr Ala Leu Asp Pro Lys Lys
610 615 620
Ala Ala Val Ala Ala Ala Ile Ala Arg Ala Lys Ala Lys Lys Leu Ala

625		630		635		640
Gln Thr Asn Ser Thr Ser Glu Ala Ile Ser Asn Ser Gln Thr Ala Glu						
		645		650		655
Asn Glu Val Glu Lys Thr Lys Ser Ala Val Glu Lys Thr Glu Glu Asn						
		660		665		670
Ser Thr Ala Leu Asp Ala Lys Lys Ala Ala Ile Ala Ala Ala Ile Ala						
		675		680		685
Arg Ala Lys Ala Lys Lys Leu Ala Gln Ala Asn Ser Ala Ser Glu Ala						
		690		695		700
Ile Ser Asn Ser Gln Thr Ala Glu Asn Glu Val Glu Lys Thr Lys Ser						
		705		710		715
Ala Val Glu Lys Thr Gln Gln Asn Ser Thr Ala Leu Asp Pro Lys Lys						
		725		730		735
Ala Ala Val Ala Ala Ala Ile Ala Arg Ala Lys Ala Lys Lys Leu Ala						
		740		745		750
Gln Ala Asn Ser Thr Ser Glu Ala Ile Ser Asn Ser Gln Thr Ala Glu						
		755		760		765
Asn Glu Val Glu Lys Thr Lys Ser Ala Val Glu Lys Thr Gln Glu Asn						
		770		775		780
Ser Thr Ala Leu Asp Pro Lys Lys Ala Ala Val Ala Ala Ala Ile Ala						
		785		790		795
Arg Ala Lys Ala Lys Lys Leu Ala Lys Thr Gln Ala Thr Leu Glu Asn						
		805		810		815
Asn Gln Glu						

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<210> 63
<211> 52
<212> PRT
<213> H. influenzae

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<223> predicted coding region HI1562

<220>
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<223> gi|1574414

<400> 63

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Met Leu Ser Lys Asp Pro Lys Val Leu Ile Lys Leu Gly Glu Leu Glu
 1 5 10 15
 Lys Asp Lys Ser Lys Ala Lys Lys Tyr Phe Gly Asp Ala Cys Asp Leu
 20 25 30
 Arg Ser Gln Glu Gly Cys Asp Lys Tyr Arg Glu Leu Asn Gln Lys Gln
 35 40 45
 Asp Thr Asn Lys
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<210> 64
 <211> 150
 <212> PRT
 <213> H. influenzae

<220>
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<220>
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 <223> gi|1574625

<400> 64

Met Thr Leu Gln Leu Asn Thr Ile Ala Leu Leu Leu Val Ile Leu Leu
 1 5 10 15
 Ile Leu Gly Val Leu Ser Asn Asn Ser Thr Ile Thr Ile Ser Ala Ala
 20 25 30
 Val Leu Leu Ile Met Gln Gln Thr Phe Leu Ser Ser His Ile Pro Leu
 35 40 45
 Leu Glu Lys Tyr Gly Val Lys Ile Gly Ile Ile Ile Leu Thr Ile Gly
 50 55 60
 Val Leu Ser Pro Leu Val Ser Gly Lys Ile Gln Leu Pro Asp Leu Ser
 65 70 75 80
 Gly Phe Leu Ser Trp Lys Met Ala Leu Ser Ile Ser Val Gly Val Leu
 85 90 95
 Val Ala Trp Leu Ala Gly Lys Gly Val Pro Leu Met Gly Glu Gln Pro
 100 105 110
 Ile Leu Val Thr Gly Leu Leu Ile Gly Thr Ile Ile Gly Val Ala Phe
 115 120 125
 Leu Gly Gly Ile Pro Val Gly Pro Leu Ile Ala Ala Gly Ile Leu Ala
 130 135 140

Leu Leu Leu Gly Lys Ile
145 150

<210> 65
<211> 129
<212> PRT
<213> H. influenzae

<220>
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<223> predicted coding region HI1339

<220>
<221> misc_feature
<223> gi|1574799

<400> 65

Met Glu Lys Ile Met Lys Lys Leu Thr Leu Ala Leu Val Leu Gly Ser
1 5 10 15

Ala Leu Val Val Thr Gly Cys Phe Asp Lys Gln Glu Ala Lys Gln Lys
20 25 30

Val Glu Asp Thr Lys Gln Thr Val Ala Ser Val Ala Ser Glu Thr Lys
35 40 45

Asp Ala Ala Ala Asn Thr Met Thr Glu Val Lys Glu Lys Ala Gln Gln
50 55 60

Leu Ser Thr Asp Val Lys Asn Lys Val Ala Glu Lys Val Glu Asp Ala
65 70 75 80

Lys Glu Val Ile Lys Ser Ala Thr Glu Ala Ala Ser Glu Lys Val Gly
85 90 95

Glu Met Lys Glu Ala Ala Ser Glu Lys Ala Ser Glu Met Lys Glu Ala
100 105 110

Val Ser Glu Lys Ala Thr Gln Ala Val Asp Ala Val Lys Glu Ala Thr
115 120 125

Lys

<210> 66
<211> 136
<212> PRT
<213> H. influenzae

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<223> predicted coding region HI1462.1

<220>

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<223> gi|3212225

<400> 66

Met Xaa Gln Ser Asn Tyr Ser Met Glu Lys Ile Met Lys Lys Leu Thr
1 5 10 15
Leu Ala Leu Val Leu Gly Ser Ala Leu Val Val Thr Gly Cys Phe Asp
20 25 30
Lys Gln Glu Ala Lys Gln Lys Val Glu Asp Thr Lys Gln Thr Val Ala
35 40 45
Ser Val Ala Ser Glu Thr Lys Asp Ala Ala Ala Asn Thr Met Thr Glu
50 55 60
Val Lys Glu Lys Ala Gln Gln Leu Ser Thr Asp Val Lys Asn Lys Val
65 70 75 80
Ala Glu Lys Val Glu Asp Ala Lys Glu Val Ile Lys Ser Ala Thr Glu
85 90 95
Ala Ala Ser Glu Lys Val Gly Glu Met Lys Glu Ala Ala Ser Glu Lys
100 105 110
Ala Ser Glu Met Lys Glu Ala Val Ser Glu Lys Ala Thr Gln Ala Val
115 120 125
Asp Ala Val Lys Glu Ala Thr Lys
130 135

<210> 67

<211> 113

<212> PRT

<213> H. influenzae

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<220>

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<223> gi|1574607

<400> 67

Met Phe Thr Asp Trp Lys Glu His Thr Ser His Val Lys Lys Ser Phe

1	5	10	15												
Gly	Glu	Leu	Gly	Lys	Gln	Tyr	Pro	Lys	Met	Leu	Gln	Ala	Tyr	Gln	Ala
	20							25					30		
Leu	Gly	Ala	Ala	Ala	Ala	Glu	Gly	Asn	Val	Leu	Asp	Ala	Lys	Thr	Arg
	35						40					45			
Glu	Leu	Ile	Ala	Leu	Ala	Val	Ala	Val	Thr	Thr	Arg	Cys	Glu	Ser	Cys
	50					55					60				
Ile	Ser	Ala	His	Ala	Glu	Glu	Ala	Val	Lys	Ala	Gly	Ala	Ser	Glu	Ala
65					70				75					80	
Glu	Val	Ala	Ala	Ala	Leu	Ala	Thr	Ala	Ile	Ala	Leu	Asn	Ala	Gly	Ala
			85					90						95	
Ala	Tyr	Thr	Tyr	Ser	Leu	Arg	Ala	Leu	Glu	Ala	Tyr	Ser	Val	Gln	Lys
			100					105					110		

Ala

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<210> 68
<211> 33
<212> PRT
<213> H. pylori

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<223> predicted coding region HP0131

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<220>
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<223> gi|2313229

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<400> 68

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Met	Pro	Tyr	Pro	Phe	Met	Ser	Phe	Lys	Gln	Thr	Phe	Tyr	Tyr	Lys	Met
1				5				10					15		
Glu	Ser	Lys	Thr	Met	Lys	Glu	Arg	Phe	Lys	Thr	Leu	Phe	Phe	Lys	Ile
			20					25				30			

Phe

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<210> 69
<211> 12
<212> PRT
<213> H. pylori

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<220>

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<221> misc_feature
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<400> 69

Met Asn Glu Asn Gly Lys Lys Glu Ala Leu Gln Leu
1 5 10

<210> 70
<211> 26
<212> PRT
<213> H. pylori

<220>
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<223> predicted coding region HP0560

<220>
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<223> gi|2313684

<400> 70

Met Gly Ile Ile Tyr Leu Ile Leu Phe Leu Ile Val Ile Tyr Leu Leu
1 5 10 15

Tyr Arg Ile Leu Asp Val Leu Glu Gln Lys
20 25

<210> 71
<211> 48
<212> PRT
<213> H. pylori

<220>
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<223> predicted coding region HP0756

<220>
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<400> 71

Met Lys Asp Tyr Glu Asp Glu Leu Glu Asp Phe Glu Glu Glu Glu Leu

Glu Asp Asn Pro Glu Leu Asp Lys Lys Ile Asn His Leu Glu Val Asp
 65 70 75 80
 Leu Asn Arg Leu Val Asn Glu Tyr Lys Asn Phe Gln Phe Gln Lys Asn
 85 90 95
 His Met Val Asp Lys Val Ser Glu Leu Asp Asn Leu Thr Arg Phe Tyr
 100 105 110
 Lys Asn Glu Leu Thr Arg Leu Gln Gln Glu Asn Ala Asp Phe Leu Asn
 115 120 125
 Ser Lys Tyr Ala Asn Leu Ala Asn Phe Gln Ala Asn Tyr His Asn Lys
 130 135 140
 Leu Asn Asp Phe His Arg Leu Ile Glu Asn Gln Asn Gln Thr Ile Asn
 145 150 155 160
 Arg Leu Asn Gln Lys Ile Asn Gly Asn Gln Asn Leu Ile Asp Asn Asn
 165 170 175
 Val Ala Leu Leu Gln Asn Pro Asn Ile Thr Val Glu Lys Lys Asn Tyr
 180 185 190
 Leu Leu Asn Val Ile Asp Gln Leu Tyr Asn Glu Leu Asp Gln Leu Glu
 195 200 205
 Asn Gln Lys Arg Leu Leu Ser Ile Glu Tyr Glu Asn Thr Tyr Arg Glu
 210 215 220
 Leu Val Ser Ala Asp Asn Glu Leu Gln Asn Val Tyr Glu Asn Ile Asp
 225 230 235 240
 Gln Asn Gln Ile Gln Phe Lys His Gln Tyr Gln Thr Tyr Arg Asp Glu
 245 250 255
 Leu Ser Gln Leu Glu Arg Lys Ile Gln Leu Thr Lys Gln Glu Leu Val
 260 265 270
 Asp Lys Glu Ser Ala Leu Arg Val Lys Ile Asp Asp Ala Asp Phe Tyr
 275 280 285
 Ile Asn Ala Arg Leu Ala Glu Leu Asp Asp Val Ala Lys Gln Leu Ser
 290 295 300
 Phe Gln Asp Gly Ile Thr Lys Gln Asn Ala Gln His Val Glu Asp Lys
 305 310 315 320
 Leu Val Ala Leu Asn Lys Glu Lys Asp Arg Leu Asn Thr Gln Lys Glu
 325 330 335
 Ala Phe Phe Asn Leu Arg Gln Ser Ala Leu Ile Asp Ile Asn Lys Leu
 340 345 350
 Gln Gln Glu Asn Glu Leu Phe Ala Lys His Leu Glu His Gln Gln Asn

355					360					365						
Glu	Phe	Glu	Gln	Lys	Gln	Ser	Asp	Ser	Leu	Leu	Lys	Leu	Glu	Thr	Glu	
370					375					380						
Tyr	Lys	Ala	Leu	Gln	His	Lys	Ile	Asn	Glu	Phe	Lys	Asn	Glu	Ser	Ala	
385					390					395					400	
Thr	Lys	Ser	Glu	Glu	Leu	Leu	Asn	Gln	Glu	Arg	Glu	Leu	Phe	Glu	Lys	
405					410					415						
Arg	Arg	Glu	Ile	Asp	Thr	Leu	Leu	Thr	Gln	Ala	Ser	Leu	Glu	Tyr	Glu	
420					425					430						
His	Gln	Arg	Glu	Ser	Ser	Gln	Leu	Leu	Lys	Asp	Lys	Gln	Asn	Glu	Val	
435					440					445						
Lys	Gln	His	Phe	Gln	Asn	Leu	Glu	Tyr	Ala	Lys	Lys	Glu	Leu	Asp	Lys	
450					455					460						
Glu	Arg	Asn	Leu	Leu	Asp	Gln	Gln	Lys	Lys	Val	Asp	Ser	Glu	Ala	Ile	
465					470					475					480	
Phe	Gln	Leu	Lys	Glu	Lys	Val	Ala	Gln	Glu	Arg	Lys	Glu	Leu	Glu	Glu	
485					490					495						
Leu	Tyr	Leu	Val	Lys	Lys	Gln	Lys	Gln	Asp	Gln	Lys	Glu	Asn	Glu	Leu	
500					505					510						
Leu	Phe	Phe	Glu	Lys	Gln	Leu	Lys	Gln	His	Gln	Ala	Asp	Phe	Glu	Asn	
515					520					525						
Glu	Leu	Glu	Ala	Lys	Gln	Gln	Glu	Leu	Phe	Glu	Ala	Lys	His	Ala	Leu	
530					535					540						
Glu	Arg	Ser	Phe	Ile	Lys	Leu	Glu	Asp	Lys	Glu	Lys	Asp	Leu	Asn	Thr	
545					550					555					560	
Lys	Ala	Gln	Gln	Ile	Ala	Asn	Glu	Phe	Ser	Gln	Leu	Lys	Thr	Asp	Lys	
565					570					575						
Ser	Lys	Ser	Ala	Asp	Phe	Glu	Leu	Met	Leu	Gln	Asn	Glu	Tyr	Glu	Asn	
580					585					590						
Leu	Gln	Gln	Glu	Lys	Gln	Lys	Leu	Phe	Gln	Glu	Arg	Thr	Tyr	Phe	Glu	
595					600					605						
Arg	Asn	Ala	Ala	Val	Leu	Ser	Asn	Arg	Leu	Gln	Gln	Lys	Arg	Glu	Glu	
610					615					620						
Leu	Leu	Gln	Gln	Lys	Glu	Thr	Leu	Asp	Gln	Leu	Thr	Lys	Ser	Phe	Glu	
625					630					635					640	
Gln	Glu	Arg	Leu	Ile	Asn	Gln	Arg	Glu	His	Lys	Glu	Leu	Val	Ala	Ser	
645					650					655						

Val	Glu	Lys	Gln	Lys	Glu	Ile	Leu	Gly	Lys	Lys	Leu	Gln	Asp	Phe	Ser	
			660					665					670			
Gln	Thr	Ser	Leu	Asn	Ala	Ser	Lys	Asn	Leu	Ala	Glu	Arg	Glu	Met	Ala	
		675					680					685				
Ile	Lys	Phe	Lys	Glu	Lys	Glu	Ile	Glu	Ala	Thr	Glu	Lys	Gln	Leu	Leu	
	690					695					700					
Asn	Asp	Val	Asn	Asn	Ala	Glu	Val	Ile	Gln	Ala	Asp	Leu	Ala	Gln	Leu	
705					710				715						720	
Asn	Gln	Ser	Leu	Asn	Gln	Glu	Arg	Ser	Glu	Leu	Gln	Asn	Ala	Lys	Gln	
			725					730						735		
Arg	Ile	Ala	Asp	Phe	His	Asn	Asp	Ser	Leu	Lys	Lys	Leu	Asn	Glu	Tyr	
		740					745						750			
Glu	Leu	Ser	Leu	Gln	Lys	Arg	Leu	Gln	Glu	Leu	Gln	Thr	Leu	Glu	Ala	
		755					760					765				
Asn	Gln	Lys	Gln	His	Ser	Tyr	Gln	Asn	Gln	Ala	Tyr	Phe	Glu	Gly	Glu	
	770					775				780						
Leu	Asp	Lys	Leu	Asn	Arg	Glu	Lys	Gln	Ala	Phe	Leu	Asn	Leu	Arg	Lys	
785					790				795						800	
Lys	Gln	Thr	Met	Glu	Val	Asp	Ala	Ile	Lys	Gln	Arg	Leu	Ser	Asp	Lys	
			805						810					815		
His	Gln	Ala	Leu	Asn	Met	Gln	Gln	Ala	Glu	Leu	Asp	Arg	Lys	Thr	His	
		820						825					830			
Glu	Leu	Asn	Asn	Ala	Phe	Leu	Asn	His	Asp	Ala	Asp	Gln	Lys	Ser	Leu	
	835						840					845				
Gln	Asp	Gln	Leu	Ala	Thr	Val	Lys	Glu	Thr	Gln	Lys	Leu	Ile	Asp	Leu	
	850					855					860					
Glu	Arg	Ser	Ala	Leu	Leu	Glu	Lys	Gln	Arg	Glu	Phe	Ala	Glu	Asn	Val	
865					870					875					880	
Ala	Gly	Phe	Lys	Arg	His	Trp	Ser	Asn	Lys	Thr	Ser	Gln	Leu	Gln	Lys	
			885						890					895		
Ile	Tyr	Glu	Leu	Thr	Lys	Lys	Gln	Glu	Ser	Glu	Gln	Thr	Gln	Lys	Glu	
		900					905						910			
Thr	Glu	Leu	Lys	Ile	Ala	Phe	Ser	Asp	Leu	Gln	Lys	Asp	Tyr	Gln	Val	
		915					920					925				
Phe	Glu	Leu	Gln	Lys	Asp	Gln	Glu	Phe	Arg	Gln	Ile	Glu	Ala	Lys	Gln	
	930					935					940					

Arg Glu Leu Asp Lys Leu Ala Glu Lys Asn Asn Gln Val Lys Leu Glu
 945 950 955 960
 Leu Asp Asn Arg Phe Gln Ala Leu Gln Asn Gln Lys Gln Asp Thr Val
 965 970 975
 Gln Ala Gln Leu Glu Leu Glu Arg Glu Gln His Gln Leu Asn Leu Glu
 980 985 990
 Gln Thr Ala Phe Asn Gln Ala Asn Glu Ser Leu Leu Lys Gln Arg Glu
 995 1000 1005
 Gln Leu Thr Lys Lys Ile Gln Ala Phe His Tyr Glu Leu Lys Lys
 1010 1015 1020
 Arg Asn Gln Phe Leu Ala Leu Lys Gly Lys Arg Leu Phe Ala Lys
 1025 1030 1035
 Glu Gln Asp Gln Gln Arg Lys Asp Gln Glu Ile Asn Trp Arg Phe
 1040 1045 1050
 Lys Gln Phe Glu Lys Glu Tyr Thr Asp Phe Asp Glu Ala Lys Lys
 1055 1060 1065
 Arg Glu Leu Glu Glu Leu Glu Lys Ile Arg Arg Ser Leu Ser Gln
 1070 1075 1080
 Ser Asn Val Glu Leu Glu Arg Lys Arg Glu Lys Leu Ala Thr Asp
 1085 1090 1095
 Phe Thr Asn Leu Asn Lys Val Gln His Asn Thr Gln Ile Asn Arg
 1100 1105 1110
 Asp Gln Leu Asn Ser Gln Ile Arg Gln Phe Leu Leu Glu Arg Lys
 1115 1120 1125
 Asn Phe Gln Arg Phe Ser Asn Glu Ala Asn Ala Lys Lys Ala Phe
 1130 1135 1140
 Leu Ile Lys Arg Leu Arg Ser Phe Ala Ser Asn Leu Lys Leu Gln
 1145 1150 1155
 Lys Glu Ala Leu Ala Ile Gln Lys Leu Glu Phe Asp Lys Arg Asp
 1160 1165 1170
 Glu Gln Gln Lys Lys Glu Leu Gln Gln Ala Thr Leu Gln Leu Glu
 1175 1180 1185
 Gln Phe Lys Phe Glu Lys Gln Asn Phe Asp Ile Glu Lys Gln Arg
 1190 1195 1200
 Gln Leu Val Ala Ile Lys Thr Gln Cys Glu Lys Leu Ser Asp Glu
 1205 1210 1215
 Lys Lys Ala Leu Asn Gln Lys Leu Val Glu Leu Lys Asn Leu Ser

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Gln Thr Tyr Leu Ala Asn Lys	Asn Lys Ala Glu Tyr Ser Gln Gln
1235	1245
Gln Leu Gln Gln Lys Tyr Thr	Asn Leu Leu Asp Leu Lys Glu Asn
1250	1260
Leu Glu Arg Thr Lys Asp Gln	Leu Asp Lys Lys His Arg Ser Ile
1265	1275
Phe Ala Arg Leu Thr Lys Phe	Ala Asn Asp Leu Arg Phe Glu Lys
1280	1290
Lys Gln Leu Leu Lys Ala Gln	Arg Ile Val Asp Asp Lys Asn Arg
1295	1305
Leu Leu Lys Glu Asn Glu Arg	Asn Leu His Phe Leu Ser Asn Glu
1310	1320
Thr Glu Arg Lys Arg Ala Val	Leu Glu Asp Gln Ile Ser Tyr Phe
1325	1335
Glu Lys Gln Arg Lys Gln Ala	Thr Asp Ala Ile Leu Ala Ser His
1340	1350
Lys Glu Val Lys Lys Lys Glu	Gly Glu Leu Gln Lys Leu Leu Val
1355	1365
Glu Leu Glu Thr Arg Lys Thr	Lys Leu Asn Asn Asp Phe Ala Lys
1370	1380
Phe Ser Arg Gln Arg Glu Glu	Phe Glu Asn Gln Arg Leu Lys Leu
1385	1395
Leu Glu Leu Gln Lys Thr Leu	Gln Thr Gln Thr Asn Ser Asn Asn
1400	1410
Phe Lys Thr Lys Ala Ile Gln	Glu Ile Glu Asn Ser Tyr Lys Arg
1415	1425
Gly Met Glu Glu Leu Asn Phe	Gln Lys Lys Glu Phe Asp Lys Asn
1430	1440
Lys Ser Arg Leu Tyr Glu Tyr	Phe Arg Lys Met Arg Asp Glu Ile
1445	1455
Glu Arg Lys Glu Ser Gln Val	Lys Leu Val Leu Lys Glu Thr Gln
1460	1470
Arg Lys Ala Asn Leu Leu Glu	Ala Gln Ala Asn Lys Leu Asn Ile
1475	1485
Glu Lys Asn Thr Ile Asp Phe	Lys Glu Lys Glu Leu Lys Ala Phe
1490	1500

Lys	Asp	Lys	Val	Asp	Gln	Asp	Ile	Asp	Ser	Thr	Asn	Lys	Gln	Arg
1505						1510					1515			
Lys	Glu	Leu	Asn	Glu	Leu	Leu	Asn	Glu	Asn	Lys	Leu	Leu	Gln	Gln
1520						1525					1530			
Ser	Leu	Ile	Glu	Arg	Glu	Arg	Ala	Ile	Asn	Ser	Lys	Asp	Ser	Leu
1535						1540					1545			
Leu	Asn	Lys	Lys	Ile	Glu	Thr	Ile	Lys	Arg	Gln	Leu	His	Asp	Lys
1550						1555					1560			
Glu	Met	Arg	Val	Leu	Arg	Leu	Val	Asp	Arg	Met	Lys	Leu	Ala	Glu
1565						1570					1575			
Gln	Lys	Tyr	Gln	Thr	Glu	Ile	Asn	Arg	Leu	Arg	Thr	Gln	Thr	Phe
1580						1585					1590			
Asp	Ser	Glu	Lys	Gln	Asp	Ile	Lys	Asn	Phe	Phe	Pro	Pro	Leu	Phe
1595						1600					1605			
Lys	Ile	Asn	Gly	Asn	Asp	Met	Ala	Phe	Pro	Tyr	Leu	Tyr	Pro	Trp
1610						1615					1620			
Leu	Tyr	Pro	Gln	Gln	Lys	Gln	Asp	Asp	Asn	Thr	Leu	Gln	Ile	Arg
1625						1630					1635			
Gln	Leu	Phe	Glu	Gln	Gln	Leu	Gln	Phe	Met	Gln	Gln	Arg	Tyr	Glu
1640						1645					1650			
Asn	Glu	Leu	Asn	Glu	Leu	Arg	Arg	Gln	Arg	Asn	Leu	Leu	Glu	Lys
1655						1660					1665			
Lys	Leu	Asp	Gln	Ile	Gln	Leu	Glu	Ser	Gln	Leu	Asn	Asn	Lys	Gln
1670						1675					1680			
Ser	Glu	Phe	Ser	Lys	Val	Glu	Ser	Met	Met	Glu	Lys	Leu	Leu	Glu
1685						1690					1695			
Lys	Thr	Glu	Ser	Arg	Leu	Asn	Asp	Phe	Asp	Gln	Lys	Ile	Asn	Tyr
1700						1705					1710			
Leu	Thr	Lys	Lys	Val	Asn	Gln	His	Asn	Thr	Tyr	Gln	Pro	Ser	Ser
1715						1720					1725			
Tyr	Gln	Pro	Thr	Pro	Ser	Tyr	Gln	Asp	Ser	Asp	Lys	Gln	Gln	Leu
1730						1735					1740			
Leu	Phe	Arg	Ile	Gln	Glu	Leu	Glu	Lys	Gln	Asn	Leu	Phe	Gln	Gln
1745						1750					1755			
Gln	Phe	Gln	Pro	Ala	Pro	Ala	Val	Val	Gln	Gln	Pro	Thr	Ser	Phe
1760						1765					1770			

Ala Ala Pro Asn Ile Thr Lys Gln Gln Gln Ile Ala Gln Leu Asn
 1775 1780 1785

Ala Glu Ile Asn Asn Ile Lys Arg Leu Ile Ala Gln Lys Ala Ala
 1790 1795 1800

Ser Lys
 1805

<210> 74
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 <212> PRT
 <213> M. genitalium

<220>
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 <223> hypothetical protein

<220>
 <221> misc_feature
 <223> gi|1045811

<400> 74

Met Gln Tyr Ser Ala Leu Ile Pro Leu Phe Ile Leu Leu Ile Ser Leu
 1 5 10 15

Val Leu Phe Cys Phe Ser Phe Arg Lys Asn Gln Ser Glu Asn Gln Ile
 20 25 30

Val Lys Ile Leu Phe Phe Ala Tyr Cys Ile Asp Phe Leu Ala Leu Ile
 35 40 45

Leu Ala Val Met Leu Leu Thr Phe Leu Ser His Gly Leu Leu Ser Leu
 50 55 60

Ala Ile Leu Ile Pro Val Leu Val Phe Gln
 65 70

<210> 75
 <211> 1033
 <212> PRT
 <213> M. pneumoniae

<220>
 <221> misc_feature
 <223> MG328 homolog

<220>
 <221> misc_feature
 <223> gi|1674046

<400> 75

Met Glu Phe Leu Glu Gln Glu Gly Gln Glu Val Leu Thr Lys Glu Ile
1 5 10 15

Lys Ala Gly Phe Cys Glu Ile Thr Pro Ser Ser Ile Thr Glu Gln Thr
20 25 30

Thr Lys Pro Gln Leu Asp Glu Thr Gln Leu Val Asp Glu Tyr Val His
35 40 45

Thr Lys Glu Leu Glu Thr Thr Pro Ile Pro Ile Ser Phe Ala Thr Lys
50 55 60

Glu Val Leu Phe Glu Glu Val Phe Asn Thr Pro Ser Thr Gln Gln Val
65 70 75 80

Asp Glu Ser Val Leu Val Asn Glu Tyr Ile Glu Leu Thr Gln Gln Ile
85 90 95

Lys Asn Ala Ser Glu Gln Val Ser Ser Asn His Thr His Lys Phe Ser
100 105 110

Val Ala Thr Glu Pro Ala Ala Thr Lys Ala Val Ser Glu Thr Met Leu
115 120 125

Leu Asp Asp Tyr Val Glu Met Val Glu Gln Asp Val Gln Ala Gln Thr
130 135 140

Ala Leu Pro Gln Ala Ala Leu Asp Pro Thr Val Ser Leu Thr Phe Ser
145 150 155 160

Ser Pro Ile Asp Ser Asn Ala Ile Leu Val Tyr Pro Glu Met Lys Val
165 170 175

Pro His Val Phe Asp Thr Val Ala Pro Thr Thr Thr Thr Val Pro Leu
180 185 190

Asp Gln Thr Gln Leu Leu Asp Glu Leu Val Glu Val Pro Val Leu Thr
195 200 205

His Thr Val Thr Pro Ala Pro Leu Gln Pro Lys Ala Ala Pro Thr Asn
210 215 220

Phe Ala Leu Asp Gln Thr Gln Leu Val Asp Glu Leu Val Thr Val Pro
225 230 235 240

Leu Thr His Thr Leu Val Asn Glu Ser Ala Pro Val Thr Pro Val Val
245 250 255

Val Thr Ser Pro Ala Ala Glu His Ser Phe Ser Ile Thr Thr Val Asp
260 265 270

Lys Ala Asn Leu Thr Asn Ala Leu Ser Gln Thr Val Val Ile Lys Pro

275					280					285						
Ala	Glu	Asp	Ser	Ala	His	Gln	Ser	Ala	Val	Leu	Asp	Lys	Glu	Ile	Ala	
290					295					300						
Thr	Lys	Gln	Ala	Gln	Leu	Gln	Gln	Leu	Gln	Ala	Gln	Ile	Glu	Leu	Arg	
305					310					315					320	
Gln	Ala	Gln	Leu	Glu	Thr	Pro	Pro	Val	Thr	Tyr	Met	Gly	Val	Glu	Glu	
325					330					335						
Tyr	Lys	Leu	Leu	Pro	Val	Gln	Asp	Val	Val	Pro	Val	Gln	Pro	Thr	Val	
340					345					350						
Ser	Phe	Glu	Met	Thr	Leu	Leu	Gln	Glu	Gln	Leu	Asp	Lys	Ala	Leu	Lys	
355					360					365						
His	Asn	Ala	Ala	Leu	Gln	Ile	Gln	Leu	Glu	Glu	Gln	Leu	Ala	Lys	Pro	
370					375					380						
Leu	Gln	Tyr	Asp	Gln	Ser	Pro	Val	Leu	Gln	Glu	Arg	Ile	Glu	Leu	Leu	
385					390					395					400	
Gln	Asn	Gln	Asn	Thr	Asn	Leu	Thr	Gln	Glu	Leu	Asn	Glu	Leu	Gln	Gln	
405					410					415						
Lys	Leu	Phe	Lys	Ser	Gln	Asn	Asn	Ser	Leu	Leu	Leu	Leu	Ala	Arg	Leu	
420					425					430						
Glu	Glu	Asn	Arg	Thr	Leu	Lys	Gln	His	Leu	Gln	Asn	Asn	Leu	Pro	Glu	
435					440					445						
Ala	Asn	Gln	Leu	Asn	Phe	Val	Leu	Glu	Lys	Gln	Leu	Glu	Gln	Leu	Gln	
450					455					460						
Gln	Asp	Lys	His	Ser	Leu	Thr	Leu	Gln	Ile	Glu	Gln	Tyr	Lys	Phe	Asp	
465					470					475					480	
Ser	Lys	Lys	His	Gln	Glu	Gln	Leu	Ala	Leu	Ile	Pro	Ser	Leu	Arg	Ser	
485					490					495						
Glu	Ile	Asn	Ser	Leu	Glu	Thr	Glu	Val	Ile	Ser	Leu	Lys	Gln	Thr	Asn	
500					505					510						
Gln	Arg	Leu	Ser	Leu	Ile	Glu	Arg	Glu	Asn	Asn	Phe	Leu	Lys	Thr	Glu	
515					520					525						
Ile	Lys	Gln	Leu	Arg	Glu	Thr	Lys	Leu	Asn	Asp	Glu	Asn	Thr	Lys	Tyr	
530					535					540						
Arg	Asn	Leu	Leu	Lys	Gln	Tyr	Glu	Leu	Met	Arg	Ala	Asp	Ser	Asp	Ala	
545					550					555					560	
Lys	Leu	Lys	Glu	Leu	Glu	His	Glu	Gln	His	Leu	Ala	His	Gln	His	His	
565					570					575						

Gln	Glu	Gln	Leu	Ala	Gln	Leu	Gln	Arg	His	Asn	Glu	Ala	Leu	Val	Lys	
			580					585					590			
Glu	Leu	Asp	Gln	Val	Lys	Ala	Thr	Asn	Phe	Glu	Leu	Gly	Leu	Ala	Ala	
		595					600					605				
Gln	Gly	Phe	Glu	Gln	Gln	Lys	Val	Val	Leu	Glu	Gln	Lys	Asn	Ser	Ser	
	610					615					620					
Leu	Leu	Ala	Ser	Leu	Gln	Ala	Ala	Glu	Glu	Asn	Val	Gln	Ala	Leu	Gly	
625					630					635					640	
Ile	Thr	Asn	Ser	Glu	Leu	Gln	Asn	Gln	Leu	Asn	Val	Leu	Glu	Phe	Thr	
				645					650					655		
His	Lys	Glu	Lys	Thr	Ala	Phe	Asp	Ser	Lys	Thr	Leu	Thr	Leu	Thr	Lys	
			660					665					670			
Gln	Gln	Leu	Glu	Gln	Thr	Gln	Phe	Asp	Leu	Ser	Leu	Thr	Gln	Glu	Gln	
		675					680					685				
Leu	Ala	Thr	Phe	Lys	Gln	Gln	Asn	Gln	Ser	Leu	Thr	Asp	Lys	Leu	Met	
	690					695					700					
Ala	Ser	Glu	Thr	Gln	Leu	Asn	His	Leu	Gln	Gln	Ser	Asp	Glu	Asn	Leu	
705					710					715					720	
Thr	Gln	Leu	Gln	Thr	Gln	His	Glu	Leu	Leu	Gln	Glu	Ser	Tyr	Asn	Lys	
				725					730					735		
Leu	Gln	Asp	Glu	Ala	Asn	His	Thr	Gln	Gln	Gln	Phe	His	Gln	Ala	Gln	
		740						745					750			
Asn	Glu	Leu	Asp	Ala	Ala	His	Gln	Gln	Leu	Ala	Leu	Phe	Lys	Gln	Asn	
	755						760					765				
Asn	Glu	Glu	Leu	Thr	Asp	Lys	Cys	Ser	Asn	Ile	Gln	Asn	Glu	Leu	His	
	770					775					780					
Asp	Leu	Asn	Arg	Val	Lys	Thr	Asn	Trp	Glu	Asn	Leu	Asn	Thr	Glu	His	
785					790					795					800	
Asn	Leu	Leu	Gln	Asp	Lys	Tyr	Ala	Gln	Gln	Lys	Glu	Gln	Met	Gln	His	
			805						810					815		
Glu	His	Ser	Asn	Leu	Ala	Gln	Ile	Gln	Ala	Glu	His	Glu	Leu	Leu	Gln	
			820					825					830			
Glu	Ser	Tyr	Asn	Lys	Val	Lys	Ala	Glu	Leu	Asn	Glu	Ile	Gln	Ile	Thr	
		835					840					845				
Asn	Leu	Asn	Glu	Ala	Asn	Ala	Gln	Tyr	Gln	Asp	Leu	Leu	Ser	Ala	Tyr	
	850					855					860					

Glu Leu Leu Gln Ser Asn His Asn Lys Leu Lys Gln Glu Leu Gln Val
865 870 875 880

Leu Asn Gln Val Asn Leu Glu Lys Gln Gln Leu Ala Gln Lys Leu His
885 890 895

Asn Thr His Gln Ser Leu Ser Gln Thr His Ala Glu Leu Thr Gln Leu
900 905 910

Gln Ala Ala Tyr Asn Asn Leu Gln Ala Thr Pro Pro Val Ser Asp Glu
915 920 925

Leu Leu Glu Gln Phe Asn Gln Val Gln Leu Glu Lys Gln Arg Leu Leu
930 935 940

Gln Gln Asn Leu Ala Leu Val His Glu Leu Gln Tyr Phe Asn Glu Leu
945 950 955 960

Asn Ser Ser Gln Thr His Glu Ile Lys Thr Lys Gln Asp Glu Thr Val
965 970 975

Lys Glu Val Ile Ile Val Glu Lys Glu Ile Pro Val Pro Pro Glu Lys
980 985 990

Lys Pro Arg Leu Lys Lys Arg Asp Ile Val Ile Glu Asn Lys Glu Asp
995 1000 1005

Ala Leu Gly Lys Leu Ser Lys Lys Glu Arg Ile Gln Ala Tyr Ala
1010 1015 1020

Glu Arg Leu Ala Lys Ile Asn Gly Lys Gln
1025 1030

<210> 76
<211> 22
<212> PRT
<213> M. pneumoniae

<220>
<221> misc_feature
<223> A05_orf139 Protein

<220>
<221> misc_feature
<223> gi|1673719

<400> 76

Met Arg Trp Cys Arg Gly Ser Pro Tyr His Trp Asn Leu Asp Arg Arg
1 5 10 15

Asn Pro Asp Phe Pro Ala
20

<210> 77
 <211> 103
 <212> PRT
 <213> M. pneumoniae

 <220>
 <221> misc_feature
 <223> B01_orf103b Protein

<220>
 <221> misc_feature
 <223> gi|1673772

<400> 77

Met	Ser	Ser	Val	Phe	Ser	Lys	Pro	Asn	Leu	Lys	Arg	Pro	Ser	Phe	Asp
1				5					10					15	
Val	Lys	Asn	Leu	Thr	Lys	Pro	Ser	Arg	Leu	Leu	Ser	Ala	Thr	Leu	Arg
			20					25					30		
Ser	Ser	Cys	Ala	Phe	Leu	Ser	Ser	Ala	Ser	Phe	Phe	Ala	Cys	Ser	Leu
		35					40					45			
Cys	Phe	Phe	Cys	Cys	Ser	Ser	Ile	Ser	Phe	Cys	Ser	Leu	Ala	Ser	Ser
	50					55					60				
Ser	Ala	Arg	Leu	Arg	Tyr	Ser	Ser	Ser	His	Ser	Phe	Phe	Cys	Trp	Val
65					70				75						80
Leu	Phe	Ser	Arg	Ser	Gly	Leu	Ala	Tyr	Ser	Ser	Ser	Asn	Leu	Ser	Ser
				85					90					95	
Lys	Ser	Ser	Arg	Leu	Arg	Ser									
				100											

<210> 78
 <211> 112
 <212> PRT
 <213> M. pneumoniae

 <220>
 <221> misc_feature
 <223> VxpSPT7_orf112 Protein

<220>
 <221> misc_feature
 <223> gi|1674374

<400> 78

Met Ile Asp Arg Phe Phe Trp Ser Ile Leu Ser Phe Leu Leu Thr Asn
1 5 10 15

Leu Val Phe Leu Phe Val Ala Phe Leu Ile Leu Ile Ile Tyr Leu Ile
20 25 30

Ser Glu Ile Thr Gln Gln Phe Ala Phe Ala Phe Ile Ala Thr Ile Val
35 40 45

Phe Ile Ile Phe Tyr Asn Ile Leu Phe Leu Ser Tyr Leu Leu Thr Met
50 55 60

Tyr Ile Lys Gly Leu Lys Gln Ile Glu Gln Lys Ser Arg Tyr Leu Leu
65 70 75 80

Leu Val Leu Asp Val Lys Ala Asp Glu Leu Leu Pro Phe Ser Phe Leu
85 90 95

Gly Ser Leu Arg Lys Ser His Met Leu Glu Glu Met Leu Leu Glu Gln
100 105 110

<210> 79
<211> 147
<212> PRT
<213> M. pneumoniae

<220>
<221> misc_feature
<223> B01_orf147 Protein

<220>
<221> misc_feature
<223> gi|1673775

<400> 79

Met Pro Ser Ser Ala Phe Lys Ile Asn Leu Ser Val Ser Pro Trp Phe
1 5 10 15

Phe Cys Ser Thr Trp Ser Ser Leu Ile Cys Trp Pro Trp Thr Ile Thr
20 25 30

Thr Ser Val Ser Arg Ser Thr Leu Ser Ser Thr Thr Trp Ile Leu Trp
35 40 45

Thr Trp Leu Phe Asn Ser Val Ser Ile Phe Val Ser Arg Trp Ser Phe
50 55 60

Asp Phe Leu Tyr Ser Leu Asn Ser Leu Arg Val Thr Tyr Ser Val Phe
65 70 75 80

Thr Gly Ile Thr Gly Leu Leu Ser Leu Asn Cys Leu Leu Lys Leu Pro

85 90 95
 Glu Asn Ser Thr Leu Leu Leu Ser Leu Ser Ile Ile Tyr Gln Pro Glu
 100 105 110
 Lys Val Pro Phe Trp Ser Phe Ser Pro Cys His Glu Ile Leu Phe Arg
 115 120 125
 Tyr Lys Thr Glu Phe Ser Leu Ser Leu Ser His Thr Ser Phe Leu Phe
 130 135 140
 Ser Glu Ile
 145

<210> 80
 <211> 217
 <212> PRT
 <213> M. tuberculosis

<220>
 <221> misc_feature
 <223> hypothetical protein Rv3611

<220>
 <221> misc_feature
 <223> gi|2113965

<400> 80

Met Ala Ile Ala Asn Pro Ala Glu Pro Gly Ala Ala Gly Arg His His
 1 5 10 15
 Gln Pro Arg Gly Asp Arg Lys Pro Arg Ala Trp Arg Gln Cys Gly Pro
 20 25 30
 Gln Asn Gly Pro Arg Arg Ser Gln Ala Ile Thr Pro Glu Pro Gly Ala
 35 40 45
 Ala Gly Arg His His Gln Pro Arg Gly Asp Arg Lys Pro Arg Ala Trp
 50 55 60
 Arg Gln Cys Gly Pro Gln Asn Gly Pro Arg Arg Ser Gln Ala Ile Thr
 65 70 75 80
 Pro Glu Pro Gly Ala Ala Gly Arg His His Gln Pro Arg Gly Asp Arg
 85 90 95
 Lys Pro Arg Ala Trp Arg Gln Cys Gly Pro Gln Asn Gly Pro Arg Arg
 100 105 110
 Ser Gln Ala Ile Thr Pro Glu Pro Gly Ala Ala Gly Arg His His Gln
 115 120 125

Pro Arg Gly Asp Arg Lys Pro Arg Ala Trp Arg Gln Cys Gly Pro Gln
 130 135 140

Asn Gly Pro Arg Arg Ser Gln Ala Ile Thr Pro Glu Pro Gly Ala Ala
 145 150 155 160

Gly Arg His His Gln Pro Arg Gly Asp Arg Lys Pro Arg Ala Trp Arg
 165 170 175

Gln Cys Gly Pro Gln Asn Gly Pro Arg Arg Ser Gln Ala Ile Thr Pro
 180 185 190

Glu Pro Gly Ala Ala Gly Arg His Trp Leu Asp Gln Arg Pro Val Val
 195 200 205

Pro Asp Gly Val Gly Lys Ser Asp Ser
 210 215

<210> 81
 <211> 27
 <212> PRT
 <213> M. tuberculosis

<220>
 <221> misc_feature
 <223> hypothetical protein Rv1572c

<220>
 <221> misc_feature
 <223> gi|2117265

<400> 81

His Gly Gln Pro Arg Thr Asn Thr Phe His His His Glu Lys Leu Leu
 1 5 10 15

Arg His Asn Asp Glu Asp Asn His Asp Asp Pro
 20 25

<210> 82
 <211> 73
 <212> PRT
 <213> M. tuberculosis

<220>
 <221> misc_feature
 <223> hypothetical protein Rv0378

<220>
 <221> misc_feature
 <223> gi|2909499

<400> 82

Met Ser Gly Arg Trp Glu Ala Gly Asn Ala Asp Gly Asn Gly Gly Ser
1 5 10 15
Ala Gly Leu Ile Gly Ser Gly Gly Ala Gly Gly Asp Gly Gly Ser Gly
20 25 30
Gly Ala Thr Gly Ala Gly Gly Glu Gly Gly Asp Ala Gly Ala Ser Gly
35 40 45
Ser Ile Asn Gly Asn Ala Gly Asp Pro Gly Asn Ser Gly Glu Arg Gly
50 55 60
Ala Val Gly Lys Pro Gly Ala Pro Gly
65 70

<210> 83

<211> 47

<212> PRT

<213> N. meningitis MC58

<220>

<221> misc_feature

<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|7225315

<400> 83

Met Glu Trp Ala Glu Asn Glu Thr Val Lys Leu Ala Gln Lys Trp Glu
1 5 10 15
Gln Glu Gln Lys Lys Gln Gln Ile Gln Gln Lys Lys Glu Thr Glu Lys
20 25 30
Ser Pro Lys His Lys Ala Ser Arg Asp Asp Trp Glu Met Glu Arg
35 40 45

<210> 84

<211> 107

<212> PRT

<213> N. meningitis MC58

<220>

<221> misc_feature

<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|7226708

<400> 84

Met Lys Lys Leu Leu Ile Ala Ala Met Met Ala Ala Ala Leu Ala Ala
1 5 10 15

Cys Ser Gln Glu Ala Lys Gln Glu Val Lys Glu Ala Val Gln Ala Val
20 25 30

Glu Ser Asp Val Lys Asp Thr Ala Ala Ser Ala Ala Glu Ser Ala Ala
35 40 45

Ser Ala Val Glu Glu Ala Lys Asp Gln Val Lys Asp Ala Ala Ala Asp
50 55 60

Ala Lys Ala Ser Ala Glu Glu Ala Val Thr Glu Ala Lys Glu Ala Val
65 70 75 80

Thr Glu Ala Ala Lys Asp Thr Leu Asn Lys Ala Ala Asp Ala Thr Gln
85 90 95

Glu Ala Ala Asp Lys Met Lys Asp Ala Ala Lys
100 105

<210> 85

<211> 98

<212> PRT

<213> N. meningitis MC58

<220>

<221> misc_feature

<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|7226768

<400> 85

Met Lys Lys Ser Leu Phe Ala Ala Ala Leu Leu Ser Leu Val Leu Ala
1 5 10 15

Ala Cys Gly Gly Glu Lys Ala Ala Glu Ala Pro Ala Ala Glu Ala Pro
20 25 30

Ala Ala Glu Ala Pro Ala Thr Glu Ala Pro Ala Ala Glu Ala Pro Ala
35 40 45

Ala Glu Ala Pro Ala Ala Glu Ala Pro Ala Ala Glu Ala Ala Thr
50 55 60

Glu Ala Pro Ala Ala Glu Ala Ala Ala Thr Glu Ala Pro Ala Ala Glu
65 70 75 80

Ala Ala Ala Thr Glu Ala Pro Ala Ala Glu Ala Pro Ala Ala Glu Ala
85 90 95

Ala Lys

<210> 86
<211> 34
<212> PRT
<213> N. meningitis MC58

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|7227030

<400> 86

Met Pro Trp Lys Ile Ser Thr Thr Thr Asn Leu Thr Pro Val Pro Ser
1 5 10 15

Ala Asn Leu Ser Ala Leu Pro Thr Thr Arg Cys Thr Thr Pro Pro Pro
20 25 30

Thr Pro

<210> 87
<211> 114
<212> PRT
<213> N. meningitis MC58

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|7227104

<400> 87

Met Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro
1 5 10 15

Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly
 20 25 30
 Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser
 35 40 45
 Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro
 50 55 60
 Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly
 65 70 75 80
 Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Pro
 85 90 95
 Ser Phe Pro Arg Arg Arg Glu Ser Arg Pro Val Gly Ala Glu Thr Tyr
 100 105 110

Arg Val

<210> 88
 <211> 120
 <212> PRT
 <213> N. meningitis MC58

 <220>
 <221> misc_feature
 <223> hypothetical protein

 <220>
 <221> misc_feature
 <223> gi|7226645

<400> 88

 Met Ile Ala Lys Ser Leu Phe Phe Arg Cys Gln Lys Ile Tyr Phe Ile
 1 5 10 15
 Tyr Phe Ile Leu Phe Ile Cys Leu Tyr Leu Asn Ile Ser Tyr Asp Gly
 20 25 30
 Glu Ile Phe Ile Tyr Phe Ile Ile Asn Phe Thr His Leu Leu Ile Cys
 35 40 45
 His Gly Ile Leu Leu Val Phe Cys Arg Ile Phe Pro Tyr Glu Asn Ile
 50 55 60
 Pro Phe Thr Ile Phe Leu Asn Phe Ile Ser Leu Phe Leu Ile Phe Leu
 65 70 75 80
 Pro Leu Ile Phe Thr Ile Arg Glu Leu Ile Asp Ser Tyr Tyr Ile Glu

85

90

95

Ser Ile Ile Asn Leu Phe Leu Ile Leu Ile Pro His Val Ile Phe Leu
 100 105 110

Ile Tyr Leu Lys Gly Lys Gln Ile
 115 120

<210> 89

<211> 78

<212> PRT

<213> Pseudomonas aeruginosa

<220>

<221> misc_feature

<223> AE004587_5 hypothetical protein

<220>

<221> misc_feature

<223> gi|9947556

<400> 89

Met Lys Lys Thr Val Thr Leu Ala Leu Leu Leu Ala Ala Ser Leu Gly
 1 5 10 15

Leu Ala Ala Cys Asp Lys Lys Glu Glu Asp Lys Ala Ala Ala Pro Ala
 20 25 30

Ala Pro Ala Thr Glu Thr Gln Pro Ser Ala Pro Ala Thr Pro Pro Ala
 35 40 45

Glu Pro Ser Ala Pro Ala Pro Ser Ser Asp Thr Pro Ala Thr Pro Gln
 50 55 60

Thr Pro Ala Pro Thr Pro Glu Gln Pro Gln Gln Asn Gln Gln
 65 70 75

<210> 90

<211> 52

<212> PRT

<213> Pseudomonas aeruginosa

<220>

<221> misc_feature

<223> AE004746_3 hypothetical protein

<220>

<221> misc_feature

<223> gi|9949353

<400> 90

Met Ser Leu Gly Thr Ile Leu Leu Ile Ile Leu Ile Leu Leu Leu Ile
1 5 10 15

Gly Gly Leu Pro Val Phe Pro His Ser Arg Asn Trp Gly Tyr Gly Pro
20 25 30

Ser Gly Ile Ile Gly Ala Leu Leu Val Val Leu Leu Val Leu Leu Leu
35 40 45

Leu Gly Met Ile
50

<210> 91

<211> 126

<212> PRT

<213> Pseudomonas aeruginosa

<220>

<221> misc_feature

<223> AE004708_10 hypothetical protein

<220>

<221> misc_feature

<223> gi|9948900

<400> 91

Met Leu Lys Leu Phe Ala Thr Gly Leu Ala Ala Ser Phe Leu Leu Leu
1 5 10 15

Pro Pro Ala Gln Ala Ala Pro Pro Ala Pro Tyr Gly Val Gln Pro His
20 25 30

Gln Gln Ala Val Gln Arg Ala Gly Glu Gln Arg Gln Arg Gln Leu Gln
35 40 45

Glu Gln Arg Gln Arg Phe Asp Glu Gln Arg Leu Gln Leu Gln Gln Asp
50 55 60

Gln Leu Gln Arg Gln Gln Gln Asn Leu Gln Arg Gln Arg Gln Gln Arg
65 70 75 80

Gln Met Gln Asp Asn Leu Ile Arg Gln Gln Gln Leu Asp Gln Gln Arg
85 90 95

Trp Arg Leu Glu Gln Asp Gln Arg Arg Leu Asp Ser Glu Arg Arg Gln
100 105 110

Leu Glu Asn Arg Arg Arg Gln Ser Gln Ser Pro Ala Ile Arg
115 120 125

<210> 92
 <211> 101
 <212> PRT
 <213> *Pseudomonas aeruginosa*

 <220>
 <221> misc_feature
 <223> AE004643_2 hypothetical protein

<220>
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 <223> gi|9948180

<400> 92

Met	Ser	Ala	Asp	Glu	Lys	Arg	Ile	Arg	Glu	Phe	Ala	Tyr	Gln	Ile	Trp
1				5					10					15	
Glu	Ser	Glu	Gly	Cys	Pro	Asp	Gly	Gln	Ala	Glu	Arg	His	Trp	Ala	Met
			20					25					30		
Ala	Arg	Gln	Leu	Ala	Glu	Ala	Glu	Ala	Ala	Ala	Ala	Ala	Pro	Lys	Lys
			35				40					45			
Thr	Arg	Gly	Arg	Ala	Lys	Ala	Ala	Lys	Glu	Thr	Pro	Ala	Leu	Leu	Gln
			50			55					60				
Ala	Pro	Ala	Ala	Lys	Pro	Arg	Lys	Pro	Arg	Ala	Ala	Ser	Pro	Ala	Arg
65					70					75					80
Pro	Ala	Ser	Glu	Lys	Pro	Ala	Ala	Ala	Lys	Pro	Arg	Ser	Arg	Arg	Lys
				85					90					95	
Pro	Glu	Ala	Gly	Glu											
				100											

<210> 93
 <211> 521
 <212> PRT
 <213> *R. prowazekii*

<220>
 <221> misc_feature
 <223> unknown

<220>
 <221> misc_feature
 <223> gi|3860652

<400> 93

Met Lys Lys Glu Ile Leu Ser Lys Gln Gly Asn Ile Leu Glu Gln Leu
 1 5 10 15
 Lys Phe Ile Asn Ala Asn Thr Glu Ile Leu Thr Glu His Ser Lys Ala
 20 25 30
 Ile Leu Lys Asp Lys Leu Lys Glu Leu Ser Lys Gln Leu Asp Glu Ile
 35 40 45
 Ser Ser Asn Lys Leu Val Gly Phe Ile Leu Asp Glu Asn Lys Ile Asn
 50 55 60
 Thr Asn Phe Lys Asn Val Pro Phe Ser Glu Lys Lys Val Arg Glu Gln
 65 70 75 80
 Val Asn Asn Leu Asn Asn Lys Ile Leu Glu Lys Ile Phe Leu Lys Asp
 85 90 95
 Asp Gly Thr Ile Thr Glu Gln Asp Leu Thr Lys Ile Leu Gln Lys His
 100 105 110
 Lys Glu Thr Val Leu Ile Lys Asn Leu Thr Lys Ala Ile Val Tyr Ile
 115 120 125
 Asp Gly Asn Lys Asn Asn Glu Thr Val Asn Lys Thr Leu Glu Lys Cys
 130 135 140
 Leu Glu Glu Thr Thr Pro Glu Gln Gln Gly Met Ile Leu Asp Val Leu
 145 150 155 160
 Thr Asn Asn Thr Arg Ile Arg Lys Ala Leu Ile Thr Lys Ile Glu Arg
 165 170 175
 Glu Gln Arg Gln Glu His Asn Gln Lys Leu Asn Lys Asn Ile Ala Gly
 180 185 190
 Asp Thr Phe Val Asp Ala Leu Lys Lys Ala Leu Val His Arg Thr Ser
 195 200 205
 Asn Pro Glu Thr Ile Gln Lys Ser Leu Glu Arg Arg Lys Lys Glu Thr
 210 215 220
 Pro Lys Asn Leu Asn Val Trp Asp Arg Ile Ser Gln Asn Ile Pro Asn
 225 230 235 240
 Leu Asn Asn Gln Asn Asp Asn Gln Asn Gly Gln Asp Glu Asn Asn Lys
 245 250 255
 Glu Trp Glu Glu Ser Asn Gln Asn Ala Asp Tyr Leu Asn Asn Thr Asn
 260 265 270
 Ile Tyr Arg Ile Thr Lys Ala Lys Gln Asp Leu Glu Lys Ala Val Lys
 275 280 285
 Glu Thr Ile Asn Lys Phe Ser Ala Met Ser Thr Leu Ile Lys Asp Asn

290	295	300
Thr Ile Lys Asn Thr Met Ala Tyr Gln Lys Tyr Leu Lys Gly Ala Glu 305 310 315 320		
Asp Gln Leu Ala Leu Ala Lys Glu Lys Gly Lys Glu Leu Ile Glu Asn 325 330 335		
Ser Val Gln Thr Phe Lys Ile Ile Pro Lys Lys Tyr Gln Asp Asp Met 340 345 350		
Asn Glu Asn Trp Gln Asn Tyr Leu Ser Pro Glu Glu Ile Ile Glu Leu 355 360 365		
Thr Ala Leu Asn Glu His Thr Asn Thr Leu Thr Ser Asn Lys Asn Lys 370 375 380		
Ser Gly Tyr Phe Thr Ser Thr Ala Glu Ala Leu Gln Cys Lys Thr Lys 385 390 395 400		
Gln Gln Glu Tyr Tyr Thr Leu Leu Ser Lys Leu Lys Lys Ile Gly Ile 405 410 415		
Glu Lys Gln Gln Lys Lys Leu Val Lys Asp Tyr Val Asp Glu Met Ile 420 425 430		
Thr Asn Ala Lys Gln Ala Val Lys Lys Ile Glu Arg Thr Leu Glu Lys 435 440 445		
Val Asn Gln Lys Lys Glu Asn Lys Tyr Glu Phe Ser Glu Ser Ser Ala 450 455 460		
Leu Ile Ser Lys Glu Ile Leu Asp Ala Gln Ala Arg Leu Glu Asn Ala 465 470 475 480		
Lys Gln Lys Ile Glu Phe Ile Lys Leu Lys Gln Ile Ile Ser Asp Lys 485 490 495		
Arg Gln Val Asn Ser Ser Asp Glu Asp Ser Asp Asp Asp Ser Lys Lys 500 505 510		
Lys Cys Asn Gln Thr Lys Ser Arg Thr 515 520		

<210> 94
 <211> 143
 <212> PRT
 <213> R. prowazekii

<220>
 <221> misc_feature
 <223> unknown

<220>

<221> misc_feature
<223> gi|3860651

<400> 94

Met Lys Ile Gln Met Met Ile Leu Lys Lys Asn Ala Ile Lys Leu Lys
1 5 10 15
Val Glu Leu Glu Asn Ala Gln Lys Asp Ile Asn Gln Ala Lys Lys Asn
20 25 30
Leu Glu Asn Ala Glu Ala Lys Asn Glu Ala Leu Gln Arg Gln Ile Ile
35 40 45
Leu Asn His Asn Gln Asn Glu Val Asn Ser His Thr Thr Lys Asn Gln
50 55 60
Glu Lys Phe Lys Thr Asp Asn Val Thr Glu Glu Tyr Leu Glu Asp Met
65 70 75 80
Ala Leu Met Phe Lys Asn Ser Glu Asp Thr Ala Glu Gln Lys Glu Glu
85 90 95
Val Asn Cys Gln His His Glu Glu Gln Asn Arg Gln Lys Gln Glu His
100 105 110
Ile Asn Thr Glu Glu Glu Ala Val His Lys Glu Lys Ile Ile His Ile
115 120 125
Thr Glu Glu Thr Glu Thr Glu Ala Phe Lys Lys Glu Ile Asp Leu
130 135 140

<210> 95
<211> 369
<212> PRT
<213> T. pallidum

<220>
<221> misc_feature
<223> conserved hypothetical protein

<220>
<221> misc_feature
<223> gi|3322751

<400> 95

Met Cys Gln Lys Ser Ser Pro Cys Thr Tyr Ala Arg Val Arg Ser Leu
1 5 10 15
Pro Ser Val Arg Leu Phe Ser Phe Leu Ala Leu Ala Phe Ala Ser Phe
20 25 30

Leu Arg Ala Glu Asp Ala Phe Asp His Phe Arg Glu Gly Glu Arg Leu
 35 40 45
 Leu Ser Leu Gln Gln Ala Gln Gln Ala Ile Gly Pro Leu His Lys Ala
 50 55 60
 Ala Gln Gln Lys Pro Ala His Pro Lys Ala Ala Leu Tyr Leu Gly Met
 65 70 75 80
 Ala Tyr Leu Gln Thr Gly Arg Tyr Thr Gln Ala Ile Gln Trp Leu Gln
 85 90 95
 Asn Pro Pro Val His Ser Gln Glu Tyr Ala His Leu Tyr Ala Tyr Asn
 100 105 110
 Leu Gly Asn Val Tyr Phe Val Gln His Arg Tyr Glu Glu Ala Gln His
 115 120 125
 Ala Tyr Glu Gln Ala Leu Ala Leu Lys His Asp Tyr Pro Pro Ala Leu
 130 135 140
 Leu Asn Arg Ala Asn Thr Ala Met Lys Arg Gln Ala Tyr Ala His Ala
 145 150 155 160
 Leu Ala Asp Tyr Lys Lys Tyr Val Ser Gln Asn Pro Thr Ala Ser Gln
 165 170 175
 His Tyr Glu Val Gln Arg Met Ile Ala Ala Leu Glu Gln Trp Leu Gln
 180 185 190
 Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
 195 200 205
 Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
 210 215 220
 Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
 225 230 235 240
 Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
 245 250 255
 Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
 260 265 270
 Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
 275 280 285
 Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
 290 295 300
 Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
 305 310 315 320

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Phe Glu Ala
325 330 335

Leu Lys Arg Ala Leu Arg Leu Lys Gln Ala Glu Asp Ala Arg Thr Leu
340 345 350

Ser Thr Gly Ser Glu Asp Thr Val Pro Tyr Gln Glu Glu His Asn Leu
355 360 365

Glu

<210> 96
<211> 41
<212> PRT
<213> T. pallidum

<220>
<221> misc_feature
<223> predicted coding region TP0266

<220>
<221> misc_feature
<223> gi|3322546

<400> 96

Met Val Arg Val Gln Arg Arg Val Leu Lys Asn Phe Met Arg Val Val
1 5 10 15

Gly Val Asp Lys Gly Tyr Arg Leu Trp Val Glu Trp Leu Ser Cys Val
20 25 30

Cys Cys Gly Tyr Val Val Arg Ala Glu
35 40

<210> 97
<211> 38
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9654409

<400> 97

Met Ser Lys Gln Glu Met Lys Lys Pro Gln Leu Ser Leu Lys Glu Lys
1 5 10 15

Arg Lys Leu Lys Gln Glu Lys Ala Gln Glu Ser Ser Val Ile Lys Pro
20 25 30

Arg Lys Ser Lys Gly Arg
35

<210> 98
<211> 85
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9654544

<400> 98

Met Phe Leu Ser Phe Ile Cys Phe Tyr Ile Phe Lys Asn Gly Ser Tyr
1 5 10 15

Phe Ser Phe Ile Cys Leu Val Gly Cys Phe Gln Phe Phe Asp Phe Phe
20 25 30

Val Val Val Phe Ile Gly Phe Leu Phe Leu Phe Cys Ser Phe Gly Leu
35 40 45

Val Asp Phe Ser Phe Phe Tyr Phe Val Leu Ile Val Phe His Leu Phe
50 55 60

Gly Val Asp Leu Leu Ser Trp Phe Gly Trp Trp Gln Val Phe Leu Phe
65 70 75 80

Cys Asn Phe Ile Glu
85

<210> 99
<211> 43
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|9654912

<400> 99

Met Leu Asn His Leu Leu Val Arg Leu Thr Ile Gly Cys Leu Leu Val
1 5 10 15

Leu Gly Ile Lys Leu Ser Ala Leu Tyr Phe Leu Pro Met Val Leu Leu
20 25 30

Leu Asn Thr His His Lys Glu Phe Phe Gly Trp
35 40

<210> 100

<211> 31

<212> PRT

<213> Vibrio cholerae

<220>

<221> misc_feature

<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|9656707

<400> 100

Met Pro Arg His Pro Phe Val Phe Val Val Ile Pro Lys Pro Pro Phe
1 5 10 15

Leu Ala Val Val Ile Val Leu Arg Phe Val Val Thr Arg Tyr Leu
20 25 30

<210> 101

<211> 88

<212> PRT

<213> Vibrio cholerae

<220>

<221> misc_feature

<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|9657609

<400> 101

Met Leu Ser Leu Ala Val Pro Leu Leu Phe Met Ser Leu Leu Gly Phe
1 5 10 15
Lys Leu Lys Leu Pro Tyr Gly Leu Leu Met Gly Leu Ile Ile Leu Thr
20 25 30
Leu Leu Leu Gly Trp Leu Gly Asn Val Ser Leu Leu Pro Val Leu Val
35 40 45
Val Leu Phe Phe Met Ser Pro Leu Leu Leu Ala Thr Lys Arg Ala Pro
50 55 60
Trp Gln Ser Ile Leu Phe Gly Val Gly Cys Leu Leu Pro Gln Leu Val
65 70 75 80
Gln Phe Val Met Leu Asn Gln Arg
85

<210> 102
<211> 33
<212> PRT
<213> Vibrio cholerae
<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9657724

<400> 102

Met Arg Arg Leu Leu Cys Leu Ser Phe Asn Thr Leu His Leu Asn Gln
1 5 10 15
Ile Asn Asp Asn Gln Leu Lys Ser Leu Thr Lys Leu Arg Ile Ile Leu
20 25 30

Asn

<210> 103
<211> 34
<212> PRT
<213> Vibrio cholerae
<220>
<221> misc_feature
<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|9657931

<400> 103

Met Gly Lys Ser Met Pro Ile Gln Leu Leu Leu Ser Ile Pro Phe
1 5 10 15

Leu Leu Asp Ala Ala Thr Pro Ser Arg Leu Gly Ile Lys Ile Leu Ile
20 25 30

Leu Lys

<210> 104

<211> 36

<212> PRT

<213> Vibrio cholerae

<220>

<221> misc_feature

<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|9658035

<400> 104

Met Gly Tyr Pro Ser Met Ala Ala Ala Leu His Ala Ala Ala Leu Asn
1 5 10 15

Ile Ala Leu Asn Ile Gln Leu Asn Ile Ser Met Arg Ala Met Leu Leu
20 25 30

Ala Phe Leu Glu
35

<210> 105

<211> 38

<212> PRT

<213> Vibrio cholerae

<220>

<221> misc_feature

<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|9658254

<400> 105

Met Leu Ile Arg Glu Leu Ala Leu Ala Ala Tyr Gln Phe His Arg Tyr
1 5 10 15

Phe Lys Ile His Phe Met Phe Gln Phe Lys Val Phe Leu Phe Leu Ala
20 25 30

Lys Gly Phe Phe Ser Phe
35

<210> 106

<211> 35

<212> PRT

<213> *Vibrio cholerae*

<220>

<221> misc_feature

<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|9656580

<400> 106

Met Lys Leu Asn Asp Leu Asn Lys Lys Pro Leu Val Ile Lys Lys Thr
1 5 10 15

Ala Leu Ser Phe Gln Lys Leu Lys Lys Leu Gln Gln Pro Val Lys Lys
20 25 30

Phe His Phe
35

<210> 107

<211> 665

<212> PRT

<213> *Plasmodium falciparum*

<220>

<221> misc_feature

<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|3845248

<400> 107

Met Gln Tyr Phe Phe Leu Val Phe Leu Ala Val Leu Ala Lys Gly Phe
 1 5 10 15
 Leu Arg Asn Lys Glu His Ala Asn Leu Ile Asn Ser Tyr Asn Asp Ile
 20 25 30
 Val Glu Asp Ile Asn Ile Lys Lys Glu Glu Lys Ser Ser Ser Glu Pro
 35 40 45
 Pro Phe Ile Pro Ile Lys Asn Lys Ile Asp Asn Val His Thr Lys Asn
 50 55 60
 Asn Asn Gln Tyr Asn Leu His Asn Asn Lys Ser Asn Lys Thr His Leu
 65 70 75 80
 Thr Tyr Gly Thr His Thr Ser Phe Leu Gln Asn Cys Thr Ile Asn Asp
 85 90 95
 Cys Val Asp Val Asp Asn Lys Asp Ser Glu Ile Asn Asn Ile Thr Lys
 100 105 110
 Glu Lys Asp Asp Asn Asn Asn Asn Asn Gly Thr Lys Gln Ile Glu Glu
 115 120 125
 Lys Asn Lys Ile Asn Lys Ser Asp Leu His Arg Gln Asn Glu Leu Asn
 130 135 140
 Leu Gln Ser Gly Lys Asn Glu Gln Asp Ile Asn Lys Asn Glu Lys Gly
 145 150 155 160
 Lys Gln Asp Ile Ser Asn Ser Asn Ala Glu Asn Lys Lys Asp Val Lys
 165 170 175
 Glu Gly Val Lys Glu Leu Glu Glu Lys Lys Lys Glu Glu Lys Ile Ser
 180 185 190
 Asp Asp His Lys Val Glu Glu Asn Lys Lys Ser Asp Asp His Lys Val
 195 200 205
 Glu Glu Asn Lys Lys Ser Asp Asp His Lys Val Glu Glu Asn Lys Lys
 210 215 220
 Ser Asp Asp His Lys Ile Glu Glu Val Lys Lys Val Glu Glu His Glu
 225 230 235 240
 Glu Asp Glu Glu Glu Asp Lys Lys Glu Lys Lys Ser Glu Asn Lys Asn
 245 250 255
 Lys Asp Glu Asn Lys Asp Glu Asn Asp Glu Asp Asn Asp Glu Ile Ser
 260 265 270
 Asp Glu Asp Glu Val Asp Asp Asp Val Glu Glu Asp Lys Asn Glu Asn
 275 280 285
 Asp Asp Ile Asp Asp Asp Lys Lys Glu Thr Asp Lys Thr His Leu Glu

290

295

300

Glu Glu Glu Asn Glu Ile Ile Glu Lys Glu Phe Ser Asp Lys Lys Lys
305 310 315 320

Asn Gly Lys Asn Lys Asp Thr Lys Lys Glu Lys Ser Lys Asp Thr Glu
325 330 335

Lys Glu Lys Ser Lys Asp Ile Glu Lys Glu Lys Ser Lys Asp Lys Glu
340 345 350

Lys Glu Lys Ser Lys Asp Lys Glu Lys Glu Lys Gly Lys Asp Lys Glu
355 360 365

Lys Glu Lys Ser Lys Asp Ile Glu Lys Glu Lys Glu Lys Asp Lys Asp
370 375 380

Ile Glu Lys Glu Lys Ser Lys Asp Thr Ala Lys Glu Lys Glu Lys Asp
385 390 395 400

Lys Asp Ile Glu Lys Glu Lys Ser Lys Asp Met Glu Lys Leu Lys Asn
405 410 415

Lys Gln Asn Asp Glu Lys Lys Lys Asp Asp Asn Glu Lys Lys Lys Asn
420 425 430

Asp Lys Gln Asp Ile His Asp Asp Asn Asp Asp Glu Asn Asp Met Glu
435 440 445

Glu Ile Glu Glu Asn Asp Asp Glu Glu Asp Glu Asp Glu Asp Met Glu
450 455 460

Asn Lys Lys Lys Lys Lys Lys Gly Lys Asn Gly Asn Glu Asn Gly Asn
465 470 475 480

Glu Asn Gly Ser Glu Asn Gly Asn Glu Asn Gly Asn Glu Asn Gly Asn
485 490 495

Glu Asn Glu Asn Lys Asn Glu Ser Glu Asn Glu Asn Glu Asn Glu Asn
500 505 510

Glu Asn Glu Asn Gly Asn Glu Asn Glu Asn Glu Lys Glu Asn Glu Lys
515 520 525

Asp Lys Asn Ile Lys Glu Ile Glu Asn Val Thr Asn Ala Asn Lys Glu
530 535 540

Asn Tyr Glu Lys Ile Asn Lys Asn Ser Glu Ile Thr Ile Thr Lys Ser
545 550 555 560

Asn Ile Asp Ile Tyr Asn Asn Asn Arg Asn Asn Asp Ile Asp Lys Val
565 570 575

Asn Asn His Ile Phe Thr Asn Gln Gln Lys Lys His Asn Leu His Asn
580 585 590

Glu Gln Asn Lys Phe Asn Glu Thr Leu Asn Val Ser Thr Asn His Lys
595 600 605

Asn His Tyr Glu Glu Lys Lys Lys Tyr Glu Ser Asn Met Phe Asn Val
610 615 620

Asp Lys Arg Met His Lys Asn Leu Thr Ser Met Asp Thr Ile Leu His
625 630 635 640

Asn Leu Asn Asp Lys Leu Ser His His Lys Asp Leu Lys Asn Val Leu
645 650 655

Asn Asp Lys Lys Lys Lys Lys Asn Lys
660 665

<210> 108
<211> 807
<212> PRT
<213> Plasmodium falciparum

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|3845292

<400> 108

Met Ala Val Glu Ser Lys Pro Asn Asn Ser Ser Lys Glu Lys Asn Glu
1 5 10 15

Glu Asn Asp Ile Ile Asn Lys Cys Asp Asp Ser Asn Lys Ile Asn Gly
20 25 30

Lys Glu Asn Ile Phe Ala Val Glu Lys Val Gly Ile Asn Glu Ser Gly
35 40 45

His Met Ser Asn Asp Asn Ile Asn Lys Asn Gln Glu Lys Asn Lys Lys
50 55 60

Lys Lys Lys Lys Lys Asn Thr His Lys Lys Val Asn Ile Asn Asn Thr
65 70 75 80

His Ile Asn Ile His Thr Thr Asn Asp Lys Asn Asn Gly Gln Asp Ile
85 90 95

Asn Lys Pro Glu Val Ile Glu Arg Asp Asn Ile Ile Asn Ile Lys Asn
100 105 110

Asp Thr Asn Asn Ile Leu Asp Ser Ser Tyr Asn Glu Glu Gly Asn Glu

115 120 125
130 135 140
145 150 155 160
165 170 175
180 185 190
195 200 205
210 215 220
225 230 235 240
245 250 255
260 265 270
275 280 285
290 295 300
305 310 315 320
325 330 335
340 345 350
355 360 365
370 375 380
385 390 395 400
405 410 415

Asn	Asn	Arg	Asn	Asp	Ile	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Ile	Asn
130						135					140				
Ile	Asn	Asn	Asn	Asn	Ile	Asn	Asn	Ser	Cys	Ser	Asn	Asn	Tyr	Gly	Leu
145					150				155						160
Lys	Lys	Lys	Ile	Thr	Leu	Leu	Lys	Arg	Asn	Asp	Ile	Lys	Asp	Glu	Gly
				165					170					175	
Tyr	Asn	Asn	Glu	Asn	Ile	Thr	Thr	Leu	Asn	Asn	Lys	Asn	Asn	Leu	Lys
			180					185					190		
Asn	Asn	Asn	Asn	Tyr	Asn	Asp	Asn	Arg	Asn	Asn	Asn	Asn	Asn	Asn	Lys
			195				200					205			
Asn	Asn	Ile	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Cys	Cys	Ser	Glu	Lys	Thr
		210				215					220				
Leu	Glu	Gln	Arg	Glu	Lys	Glu	Tyr	Asn	Lys	Ile	Arg	Ala	Arg	Ile	Phe
225					230					235					240
Ser	Asn	Phe	Asn	Lys	Lys	Gln	Lys	Asn	Val	Gln	Lys	Thr	Glu	Gln	Asn
				245					250					255	
Asn	Leu	Asn	His	Thr	Tyr	Leu	Asn	Asn	Asn	Ile	Ile	Asn	Asn	Ile	Asn
			260					265					270		
Asn	Gly	Asp	Asn	Gln	Tyr	Ala	Tyr	Ile	Asn	Asn	Phe	Tyr	His	Ile	Tyr
		275					280					285			
His	Asn	Asn	Ser	Tyr	Asn	His	Ile	Tyr	Arg	Gln	Asn	Asn	Ile	Pro	Ile
					290		295				300				
Cys	Asn	Ile	Asn	Asn	His	Ala	Pro	Asn	Ile	Glu	Lys	Leu	Asn	Asn	Pro
305					310					315					320
Tyr	Tyr	Tyr	His	Asp	Asn	His	Ile	Ala	Tyr	Thr	Asn	Tyr	Met	Tyr	Ser
				325					330					335	
Thr	Gln	Asn	Lys	Met	Asn	Asn	Met	Lys	Thr	Lys	Gln	Ile	Gly	His	Tyr
			340					345					350		
Gly	Ile	Asn	Asn	Glu	Asp	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Ile	Asn
		355					360					365			
Asn	Asn	Asn	Asn	Asn	Asn	Ile	Asn	Asn	Asn	Asn	Ile	Asn	Asn	Asn	Asn
		370				375					380				
Val	Pro	Leu	Cys	Ile	Pro	Gln	Leu	Asp	Asn	Tyr	Asn	Lys	Thr	Lys	Asn
385					390					395					400
Asn	Phe	Asn	Gln	Gly	Thr	Asn	Asn	Phe	Asn	Gln	Gly	Thr	Asn	Asn	Phe
				405					410					415	

Asn Lys Cys Thr Asn Asn Phe Asn Asn Ala Lys Asn His Ile Lys His
 420 425 430
 Asn Ile Asn Asn Thr Asn Lys Asn Ile Glu His Leu Asn Asn His Ser
 435 440 445
 Ile Tyr Asn Phe Val Tyr Pro Glu Asn Lys Asn Ile Tyr Asp Ala Asn
 450 455 460
 Gly Asn Leu Ile Asn Asn Asn Ile Ser Tyr Thr Gln Leu Lys Met Asn
 465 470 475 480
 Asn Asn Ile Asn Phe Asn Ile His Met Glu Ser Pro Ile Asn Gln Gln
 485 490 495
 His Asn Asn Thr Phe Lys Val Asn Asn Asp Thr Asn Phe Phe Asn Glu
 500 505 510
 Pro Thr Asn Lys Met Lys Lys Lys Asn Lys Glu Lys Lys Asn Ile His
 515 520 525
 Phe Asn Asn Asn Asn Asn Asn Asn Asn Asn Lys Cys Leu Tyr Lys Asp
 530 535 540
 Ile Asn Gln Asn Asp His Asn Asn Ser Ile Ile Asn Thr Asn Gln Asn
 545 550 555 560
 Phe Asp His Ile Asn Asn Val Lys Asn Thr Glu Gln Asn Leu Gln Lys
 565 570 575
 Lys His Asn Lys Met Ser Gln Val Ser Lys Gln Ser Asn Asn Lys Asn
 580 585 590
 Asn Lys Asn Asn Ser His Leu Lys Lys Gln Ile Asn Ile Asn Thr Asn
 595 600 605
 Asn Asn Met Asp Asn Lys Asn Asn Ser His Ile Ser Lys Asn Val Ile
 610 615 620
 Val Asp Asp Asn Lys Leu Lys Ser Ser His Ala Asp Asn Ser Asn Glu
 625 630 635 640
 Ile Val Thr Lys Gly Lys Lys Lys Lys Asn Thr Asn Lys Lys Lys Lys
 645 650 655
 Ile Asn Asn Ile Asn Ser Val Asn Asn Val Asn Asn Ile Asn Ser Met
 660 665 670
 Asn Asn Ile Asn Ser Met Asn Asn Ile Ile Ser Met Asn Asn Val Asn
 675 680 685
 Asn Met Asn Asn Pro Met Tyr Phe Pro Asn Val Asn Ile Gln Lys Asp
 690 695 700

Asp Ser Asn Ile Ala Leu Leu Tyr Asn Asn Lys Pro Asn Ile Asp Phe
 705 710 715 720
 Asn Asn Phe Gln Leu Asn His Ile Asn Asn His Met Ile Gln Asn Asn
 725 730 735
 Ile Met Thr Asn Asn Val Met Leu Asn Asn Asn Leu Thr Thr Ser Asn
 740 745 750
 Phe Asn Tyr Asn Leu Ile Asn Tyr Ser Tyr Glu Pro Phe Tyr Glu Glu
 755 760 765
 Asn Leu Met Asn Asp Leu Asp Tyr Cys Arg Asp Ile Ser Leu Tyr Glu
 770 775 780
 Lys Arg Tyr Asp Arg Gly Asp Asn Leu Gln Gln Asn His Lys Arg Tyr
 785 790 795 800
 Asp Ile Asp Phe Pro Ser Leu
 805

<210> 109
 <211> 861
 <212> PRT
 <213> Plasmodium falciparum

<220>
 <221> misc_feature
 <223> hypothetical protein

<220>
 <221> misc_feature
 <223> gi|4493994

<400> 109

Met Tyr Glu Leu Leu Leu Leu Arg Phe Leu Lys Tyr Glu Cys Asp Tyr
 1 5 10 15
 Asp Asp Ser Glu Asp Ile Leu Asn Lys Tyr Cys Phe Ile Arg Glu Arg
 20 25 30
 Lys Tyr Asn Lys Pro Gly Gly Asn Lys Tyr Ile Pro Arg Asp Arg Ser
 35 40 45
 Asn Asn Asn Asn Asn Ile Gly Asn Asn Val Asn Gly Met Asn Asn Phe
 50 55 60
 Val Leu Leu Asn Asn Asn Asn Asn Met Arg Ile Arg Asn Thr Tyr
 65 70 75 80
 Asn Asn Asn Asn Asn Asn Ile Asn Asn Asn Asn Asn Asn Asn Asn
 85 90 95

Asn	Phe	Asn	Asn	Phe	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Phe	Asn	Asn		
			100						105					110			
Phe	Asn	Asn	Phe	Asn	Asn	Asn	Asn	Asn	Phe	Asn	Asn	Asn	Asn	His	Phe		
		115					120					125					
Asn	Ile	His	Asn	Ile	Asp	Asn	Tyr	Asp	Asp	Ser	Tyr	Val	Lys	Gly	Arg		
	130					135					140						
His	Arg	Gly	Asn	Tyr	Leu	Ser	Ser	Ser	Leu	Asn	Asn	Ile	Asn	Gly	Lys		
145					150					155					160		
Val	Phe	Lys	Asn	Leu	Asp	Asp	Asn	Cys	Tyr	Asn	Leu	Pro	Thr	Asn	Asn		
				165				170						175			
Leu	Tyr	Ile	Asp	Lys	Glu	Gly	Lys	Met	His	Leu	Thr	Gly	Lys	Glu	His		
			180					185					190				
Tyr	Asn	Ala	Ala	Ser	Ser	Asn	Glu	Tyr	Asn	His	Asn	Asn	Lys	Asn	Thr		
		195					200					205					
Asn	Asn	Tyr	Asn	Asn	Asn	Ser	Tyr	Asn	Asn	Asn	Asn	Phe	Cys	Asn	Asn		
	210					215						220					
Asn	Tyr	Asn	Asp	Asn	Asn	Tyr	Asn	Asn	Ser	Asn	Asn	Lys	Gly	Met	Gly		
225					230				235						240		
Asn	Lys	Tyr	Glu	Arg	Ser	Leu	Asn	Tyr	Leu	Lys	Lys	Glu	His	Asp	Met		
				245					250					255			
Val	Asp	Tyr	Glu	Tyr	Asn	Asn	Lys	Gly	Asn	Ile	Arg	Lys	Asn	Asp	Ser		
			260					265					270				
Glu	Lys	Tyr	Trp	Asp	Asn	Pro	Pro	Leu	His	Tyr	Ser	Lys	Lys	Asn	Asn		
		275					280					285					
Tyr	Asp	Ile	Phe	Thr	Leu	Gly	Asp	Ile	Lys	Lys	Tyr	Ala	Lys	Asn	Asn		
	290					295					300						
Glu	Lys	Lys	Gly	Asn	Asn	Lys	Tyr	Met	Asn	Met	His	Asp	Asn	Asn	Ser		
305					310					315					320		
Asn	Asn	Ser	Asn	Asn	Val	Leu	Asn	Asn	Asn	Asn	Met	Asn	Ser	Asn	Ser		
				325					330					335			
Asn	Asn	Tyr	Asn	Asn	Ile	Phe	Lys	Asp	Asn	Asp	Glu	Glu	Asn	Leu	Thr		
			340					345					350				
Lys	Ser	Asn	Phe	Ala	Lys	Trp	Phe	Lys	Asn	Asn	Asn	Asn	Met	Asn	Val		
		355					360					365					
Asn	Glu	Asn	Thr	Asp	Ile	Ile	Lys	Tyr	Leu	Asn	Asn	Lys	Asn	Ser	Gln		
	370					375						380					

Gly His Ser Asp Gly Lys Asn Asn Asn Asn Asn Asn Gly Asn Asn Ile
385 390 395 400

Ile Asn Asn Asn Ser Asn Asn Lys Asn Asn Ile Phe Gln Gly Asn Ser
405 410 415

Arg Asn Tyr Glu Asn Val Met Tyr Asn Ile Asn Asn Asn Asn Asn Asn
420 425 430

Asn Ile Ile Ser Asn Asn Lys Asn Glu Ala Ser Phe Asn Thr Asp Asn
435 440 445

Ile Asn Thr Asn Ser Gly Arg Glu Glu Glu Lys Ile Ser Asn Thr Val
450 455 460

Ala Glu Leu Leu Met Lys Gln Ile Ser Met Ile Lys Glu Arg Asn Lys
465 470 475 480

Gly Leu Asp Val Leu Glu Lys Lys Asn Thr Phe Gly Phe Leu Asp Asn
485 490 495

Asn Tyr Gln Asn Tyr Gly Ser Asn Asn Asn Ser Ser Leu Glu Lys Asn
500 505 510

Asn Met Lys Glu Asn Asp Ile Tyr Ser Lys Glu Ala Ser Lys Arg Ile
515 520 525

Met Asp Ile Phe Arg Thr Leu Asn Ser Asn Gly Leu Val Ser Gln Glu
530 535 540

Ser Leu Leu Val Asn Gln Ser Val Leu Asn Asn Asn Asn Tyr Asn
545 550 555 560

Asn Tyr Asn Ser Asn Asn Asn Arg Asn Lys Asn Gln Asn Asn Asn Asn
565 570 575

Asn Asn Asn Asn Asn Met Asn Asn Met Asn Asn Ser Asn Asn Asn Ile
580 585 590

Asn Asn Asn Asn Asn Tyr Tyr Lys Asn Asn His Lys Tyr His Ser Met
595 600 605

Asp Asn Val Thr Tyr Lys Lys Ile Phe Ile Asn Asn Tyr Ser Asn Asn
610 615 620

Asp Gly Asn Asn Asn Ser Asn Asn Ser Asn Ser Asn Asn Asn Val Glu
625 630 635 640

His Tyr Tyr Met Asn Asn Lys Lys Asn Phe Lys Asn Lys Ile Asn Asn
645 650 655

Tyr His Asn Leu Pro Asp Asn Lys Asn Asn Met Met Asn Asn Asn Thr
660 665 670

Tyr Asn Asn Ile Asn Lys Asn Asn Leu Ser Asn Met Glu Asn Phe Pro

675	680	685
Pro Ser Leu Ser Phe Asn Asn Ser Asp Ile Asn Lys Asn Asn Ala Gln 690 695 700		
Gly Asn Ile Asn Ile Thr Pro Ile Ile Asn Ser Ile Leu Arg Leu Asp 705 710 715 720		
Asn Glu Val Asp Asn Val His Asn Asn Ser Ile Ser Glu Asn Ile Gln 725 730 735		
Asn Ala Lys Val Ser Asn Val Leu Asp Ser Leu Lys Ser Leu Leu Lys 740 745 750		
Ala Ser Lys Ser Gln Gly Asn Asn Asn Tyr Asn Ile Pro Lys Asn Phe 755 760 765		
Asn Asn Asn Asn Asn Asn Asn Asn Asn Ser Lys Phe Ile Asn Tyr Asn 770 775 780		
Ser Gln Gln Tyr Tyr Pro Ser His Gln Gln Gln Gln Gln Gln His Gln 785 790 795 800		
Gln Gln Gln Gln Gln Gln Gln Gln Gln Thr Leu Ile Gln Thr Gln Ile 805 810 815		
Asn Ser Thr His Leu Asn Asp Phe Asn Lys Lys Lys Phe Asn Lys Lys 820 825 830		
Glu Arg Tyr Pro Met Lys Tyr Pro Glu Phe Asp Gly Thr Thr Asn Glu 835 840 845		
Thr Met Met Val Arg Glu Lys Ala Glu Arg Gln Leu Val 850 855 860		

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Lys Lys Gly Pro Val Glu Leu Thr Glu Glu Asp Ile Ala Phe Lys Lys
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Glu Met Ala Glu Lys Lys Lys Ala Glu Glu Glu Ala Lys Gln Lys Leu
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Leu Lys Ala Lys Lys Lys
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Met Arg Glu Arg Leu Ser Thr Asp Glu Tyr Val Tyr Trp Ser Gly Ile
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Leu Leu Pro Leu Ile Arg Val Ile Asp Leu Ala Ser Val Asp Ser Pro
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Leu Ala Leu Ala Leu Arg Ala Cys Val Cys Val Cys Val Cys Val Cys
35 40 45

Val Cys Val Cys Val Cys Val Cys Val Val Val Phe Leu Pro Leu Pro
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Ser Leu Arg Ala Gln Ser Pro
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Glu Ile Glu Ala Ala Trp Ala Lys Ala Asp Thr Ala His Glu Gln Glu
20 25 30
Gln Arg Ser Arg Glu Leu Leu His Thr Leu Arg Gln Gln Val Thr Glu
35 40 45
Leu Asp Ala Met Val Glu Lys Thr Ala Gly Leu Ser Met Gly Gln Glu
50 55 60
Ala Tyr Leu Arg Asp Leu Leu Thr Val Lys Lys Asp Arg Glu Glu Glu
65 70 75 80
Ala Met Leu Leu His Ala Ala Leu Asn Arg Thr Glu Ala Asp His Arg
85 90 95
Gln Val Cys Val Gln Leu Ala Ala Ala Lys Gln Ala His Glu Ala Ala
100 105 110
Gln Arg Glu Arg Asp Glu Gln Arg Gln Val Tyr Gln His Leu Leu Thr
115 120 125
Ser Leu Glu Ala Glu Gln Arg Glu Arg Ala Ala Lys Glu Ala Ser Val
130 135 140
Arg Gln Tyr Arg Asp Thr Thr Glu Leu Cys Met Arg Arg Leu Asp Glu
145 150 155 160
Arg Gly Val Glu Val Glu Arg Ala Ile Arg Glu Glu Lys Lys Ala Ala
165 170 175
Lys Glu Ala Glu Gly Thr Ala Gln Glu Ile Gln Ala Ile Ala Arg Gln
180 185 190
Leu Gln Glu Arg Gln Glu Arg Phe Gly Val Glu Ala Ala Arg Leu Ala
195 200 205
Ala Ala Glu Arg Glu Asn Thr Ile Leu Thr Arg Glu Leu Pro Gln Arg
210 215 220
Gln Ala Ala Leu His Glu Gln Gln Asp Glu Leu Lys Arg Glu Glu Lys
225 230 235 240
Gln Leu His Leu Leu Glu Lys Ser Ala Arg Ala Gln Gln Ala Glu Leu
245 250 255
Ala Ala Leu Val Glu Lys Arg Ala Thr Ala Ala Ala Val Gln Thr
260 265 270
Arg Ala Asn Ser Val Asp Ala Ala Leu Thr Glu Leu Ala Thr Glu Glu

1000
900
800
700
600
500
400
300
200
100
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275					280					285								
Lys	Ala	Arg	Ala	Ala	Leu	Glu	Glu	Ala	Val	Ala	Lys	Glu	Met	Gln	Arg			
290					295					300								
Lys	Thr	Asn	Thr	Met	His	Thr	Asn	Thr	Phe	Lys	Ala	Thr	Ala	Ser	Ser			
305					310					315					320			
Lys	Val	Glu	Gly	Gln	Arg	Val	Met	Glu	Ala	Gly	Lys	Ser	Arg	Arg	Leu			
					325					330					335			
His	Gln	Gln	Leu	Glu	Leu	Leu	Arg	Thr	Glu	Asn	Glu	Lys	Met	Arg	Lys			
					340					345					350			
Glu	Ile	Tyr	Tyr	Ala	Glu	Gln	Asn	His	Glu	Lys	Asn	Thr	Lys	Glu	Ala			
					355					360					365			
Gln	Gln	Ala	Leu	Leu	Asn	Tyr	His	Arg	Thr	Leu	Asp	Ala	Ile	Arg	Thr			
					370					375					380			
Arg	Arg	Ser	Glu	Ala	Lys	Ala	Val	Glu	Glu	Asp	Ile	Ala	Leu	His	Gln			
					385					390					395		400	
Lys	Lys	Leu	Lys	Ala	Gln	Gln	Ala	Leu	Leu	Ser	Thr	Val	Thr	Ala	Asp			
					405					410					415			
Arg	Gln	Lys	Thr	Glu	Lys	Ala	Leu	Arg	Glu	Thr	Glu	Ala	Glu	Leu	Leu			
					420					425					430			
Leu	Leu	Arg	Asn	Arg	His	Ala	Ser	Lys	Gln	Glu	Glu	Leu	Glu	Ser	Val			
					435					440					445			
Lys	Thr	Glu	Leu	Ile	Gln	Gln	Glu	Ala	Asp	Met	Cys	Gln	Leu	His	Gly			
					450					455					460			
Leu	Ser	Arg	Gln	Leu	Asn	Lys	Asp	Val	Ala	Asn	Thr	Glu	Gln	Arg	Leu			
					465					470					475		480	
Arg	Phe	Leu	Arg	Glu	Asp	Gln	Gln	His	Ala	Glu	Ser	Arg	Val	Glu	Ala			
					485					490					495			
Leu	Arg	Ser	Glu	Ala	Gln	Glu	Leu	Arg	Gln	Val	Ile	Ala	Gln	Tyr	Asp			
					500					505					510			
Leu	Glu	Ala	Gln	Gln	Gln	Gly	Thr	Arg	Leu	Lys	Tyr	Met	Thr	His	Glu			
					515					520					525			
Arg	Asn	Ala	Ile	Ala	Thr	Gln	Leu	Leu	Leu	Arg	Ser	Glu	Glu	Leu	Glu			
					530					535					540			
Leu	Ile	Arg	Glu	Lys	Ile	Arg	Leu	Ala	Asp	Ala	Thr	Arg	Val	Ser	Gly			
					545					550					555		560	
Thr	Thr	Lys	Tyr	Gln	Arg	Ala	Met	Lys	Gln	Leu	Leu	Glu	Ser	Arg	Asp			
					565					570					575			

Leu Leu Val Glu Gln Arg Leu Arg Cys Arg Ile Ala Leu Val Arg Leu
 580 585 590
 Arg Tyr Leu Asp Arg Leu His Thr Lys Glu Val His Gln Glu Lys Leu
 595 600 605
 Leu Ser Gln Ser Arg Ala Arg Val Arg Ala Leu Ala Asp Glu Leu Gly
 610 615 620
 Thr Lys His Asn Val His Cys Trp Arg Ser Met Glu Ser Asn Ala Pro
 625 630 635 640
 Glu Val Leu Asp Ala Leu Ala Lys Val Gln Leu Leu Gln Ala Lys Leu
 645 650 655
 Leu Arg Lys His Gly Glu Leu Lys Glu Lys Thr Asp Leu Val Glu Lys
 660 665 670
 Glu Glu Arg Ala Tyr Gln Gln Leu Arg Gln Lys Leu Ala Arg Met Pro
 675 680 685
 Gly Pro Glu Ala Ala Glu Glu Leu Ala Leu Cys Ala Glu Asn Met Gln
 690 695 700
 Gln Arg Lys Ala Gln Leu Leu Cys Met Thr Asp Ser Leu Ala Glu Ala
 705 710 715 720
 Glu Gln Glu Ala Glu Val Leu Glu Val His Val Ala Gln Leu Gln Glu
 725 730 735
 Glu Leu Gln Asp Leu Lys His Arg Tyr Tyr Gln Glu Lys Thr Lys His
 740 745 750
 Ala Ala Leu Arg Gln Glu Glu Lys Leu Val Ala Arg Thr Trp Gly Ala
 755 760 765
 Gly Gly Ala Gly Ala Ala Arg Gln Ala Gly Ser Gly Thr Gly Ser Ser
 770 775 780
 Val Gly Asp Gly Asp Gly Ala Val Val Ala Ala Gly Ala Ser Ala Pro
 785 790 795 800
 Ser Ala Glu Gln Arg Arg Thr Asn Thr Asp Asp Arg Ser Pro Ser Ala
 805 810 815
 Gly Gly Pro Ala Ser Ala Asp Val Glu His Arg Ser Ala Ser Gln Pro
 820 825 830
 Gln Gln Pro His Ser His Ala Gly Gly Ser Ala Ile Val Ser Asn Ser
 835 840 845
 His Asn Gly Val Gln Ala Ala Ala Ser Gly Thr Gly Arg Met Ser Ala
 850 855 860

Ala Asn Ser Gly Arg Val Gly Asn Gly Ser Val Pro Pro Arg Asn Gly
865 870 875 880

Arg Arg Arg Ala Pro Leu Ala Glu Ala Ile Leu Asp Thr Leu Thr Ala
885 890 895

Gly Pro Pro Gln Pro Asn Phe Pro Leu Gln Arg Pro Pro His Gln Arg
900 905 910

Gln Phe Val Gly Gly Gly Phe Ser Leu Thr Arg
915 920

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Gln Gln Arg Val Lys Val Cys Gln Tyr Gln Asp Cys Gly Ala Pro Phe
20 25 30

Gly Phe Phe Ser Thr Lys Val Asn Cys His Arg Cys Gly Ile Val Leu
35 40 45

Cys Ser Lys Cys Ala Ala Thr Lys Thr Val Ile Pro Arg Tyr Tyr Ser
50 55 60

Asn Glu Thr Val Pro Val Cys Gln Arg Cys Tyr Gln Val Val Glu Arg
65 70 75 80

Tyr Lys Glu Arg Gly Ser Val Thr Pro Gly Tyr Val Val His Ser Thr
85 90 95

Thr Ile Ser Ala Thr Pro Ala Arg Ser Ser Pro Val Pro Pro Leu His
100 105 110

Thr Thr Pro Ala Leu Arg Pro His Ala Pro Ser Pro Gln Pro Ala Ser
115 120 125

Val Val Ser Thr Ala Thr Leu Val His Pro Val Glu Glu Asp Ala Val
130 135 140

Ser	Thr	Lys	Pro	Ser	Val	Ser	Glu	Ala	Asp	Leu	His	Ala	Leu	Arg	Ser	145	150	155	160
Ile	Ile	Glu	Thr	Leu	Gln	Gln	Ala	Leu	Asn	Asp	Glu	Gln	His	Asn	Ala	165	170	175	
Ala	Leu	Ala	Ala	Thr	Ser	Ala	Ala	Glu	Gln	Leu	Arg	Thr	Ala	Lys	Glu	180	185	190	
Glu	Asn	Thr	Ala	Leu	Lys	Ser	Thr	Ala	His	Leu	Leu	Gln	Gln	Arg	Leu	195	200	205	
Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Arg	Val	Ala	Arg	210	215	220	
Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	225	230	235	240
Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	245	250	255	
Leu	Glu	Ala	Arg	Val	Ala	Arg	Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg	260	265	270	
Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	275	280	285	
Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Gln	Val	Ala	Arg	Leu	Ala	290	295	300	
Ala	Asp	Gly	Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	305	310	315	320
Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	325	330	335	
Ala	Arg	Val	Ala	Arg	Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg	Gln	Gln	340	345	350	
Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	355	360	365	
Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Gln	Leu	Ala	Arg	Leu	Ala	Ala	Asp	370	375	380	
Arg	Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	385	390	395	400
Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Gln	405	410	415	
Val	Ala	Arg	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	420	425	430	

Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu
 435 440 445
 Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu
 450 455 460
 Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu
 465 470 475 480
 Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Gly Asp Glu Ala Arg Gln
 485 490 495
 Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala
 500 505 510
 Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala Ala
 515 520 525
 Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg
 530 535 540
 Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Arg Asp Glu
 545 550 555 560
 Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu
 565 570 575
 Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg
 580 585 590
 Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr
 595 600 605
 Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Val Asp
 610 615 620
 Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln
 625 630 635 640
 Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln
 645 650 655
 Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala
 660 665 670
 Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln
 675 680 685
 Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp
 690 695 700
 Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg
 705 710 715 720
 Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala

725										730					735				
Arg	Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn				
740								745				750							
Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala				
755								760				765							
Glu	Leu	Glu	Ala	Gln	Leu	Ala	Arg	Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala				
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785				790				795				800							
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				820				825				830							
Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu				
				835				840				845							
Glu	Ala	Gln	Val	Ala	Arg	Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg	Gln				
850				855				860											
Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala				
865				870				875				880							
Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Gln	Val	Ala	Arg	Leu	Ala	Ala				
				885				890				895							
Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg				
				900				905				910							
Ala	Glu	Leu	Glu	Ala	Arg	Val	Ala	Arg	Leu	Ala	Ala	Asp	Arg	Asp	Glu				
915				920				925											
Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu				
930				935				940											
Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Gln	Leu	Ala	Arg				
945				950				955				960							
Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala				
				965				970				975							
Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu				
980				985				990											
Leu	Glu	Ala	Gln	Leu	Ala	Arg	Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg				
995				1000				1005											
Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp					
1010				1015				1020											

Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Gln	Val	Ala	Arg
1025						1030					1035			
Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn
1040						1045					1050			
Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg
1055						1060					1065			
Ala	Glu	Leu	Glu	Ala	Arg	Val	Ala	Arg	Leu	Ala	Ala	Asp	Arg	Asp
1070						1075					1080			
Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln
1085						1090					1095			
Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Gln
1100						1105					1110			
Val	Ala	Arg	Leu	Ala	Ala	Asp	Gly	Asp	Glu	Ala	Arg	Gln	Gln	Leu
1115						1120					1125			
Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr
1130						1135					1140			
Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Arg	Val	Ala	Arg	Leu	Ala	Ala
1145						1150					1155			
Asp	Arg	Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu
1160						1165					1170			
Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu
1175						1180					1185			
Glu	Ala	Gln	Leu	Ala	Arg	Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg
1190						1195					1200			
Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp
1205						1210					1215			
Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Gln	Val	Ala	Arg
1220						1225					1230			
Leu	Ala	Ala	Asp	Gly	Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn
1235						1240					1245			
Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg
1250						1255					1260			
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1265						1270					1275			
Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln
1280						1285					1290			

Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Gln
1295						1300					1305			
Val	Ala	Arg	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu
1310						1315					1320			
Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Arg	Val	Ala
1325						1330					1335			
Arg	Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala
1340						1345					1350			
Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln
1355						1360					1365			
Arg	Ala	Glu	Leu	Glu	Ala	Arg	Val	Ala	Arg	Leu	Ala	Ala	Asp	Arg
1370						1375					1380			
Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln
1385						1390					1395			
Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala
1400						1405					1410			
Gln	Val	Ala	Arg	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg
1415						1420					1425			
Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Arg	Val
1430						1435					1440			
Ala	Arg	Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala
1445						1450					1455			
Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln
1460						1465					1470			
Gln	Arg	Ala	Glu	Leu	Glu	Ala	Gln	Val	Ala	Arg	Leu	Ala	Ala	Asp
1475						1480					1485			
Arg	Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu
1490						1495					1500			
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1505						1510					1515			
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1535						1540					1545			
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Glu Leu Glu Ala Arg Val 1595	Ala Arg Leu Ala Ala 1600	Asp Gly Asp Glu 1605
Ala Arg Gln Gln Leu Ala 1610	Ala Asn Ala Glu Glu 1615	Leu Gln Gln Arg 1620
Leu Asp Thr Ala Thr Gln 1625	Gln Arg Ala Glu Leu 1630	Glu Ala Arg Val 1635
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Ala Asn Ala Glu Glu Leu 1655	Gln Gln Arg Leu Asp 1660	Thr Ala Thr Gln 1665
Gln Arg Ala Glu Leu Glu 1670	Ala Gln Leu Ala Arg 1675	Leu Ala Ala Asp 1680
Arg Asp Glu Ala Arg Gln 1685	Gln Leu Ala Ala Asn 1690	Ala Glu Glu Leu 1695
Gln Gln Arg Leu Asp Thr 1700	Ala Thr Gln Gln Arg 1705	Ala Glu Leu Glu 1710
Ala Gln Leu Ala Arg Leu 1715	Ala Ala Asp Gly Asp 1720	Glu Ala Arg Gln 1725
Gln Leu Ala Ala Asn Ala 1730	Glu Glu Leu Gln Gln 1735	Arg Leu Asp Thr 1740
Ala Thr Gln Gln Arg Ala 1745	Glu Leu Glu Val Glu 1750	Met Ala Val Leu 1755
Leu Arg Glu Arg Glu Glu 1760	Ala Arg Gly Glu Thr 1765	Ala Val Ala Gly 1770
Glu Gln Val Gln Leu Tyr 1775	Arg Glu Thr Val Glu 1780	Glu Glu Glu Cys 1785
Leu Lys Glu Glu Arg Trp 1790	Cys Leu Glu Ser Arg 1795	Val Ala Gln Leu 1800
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Ala Lys Ala Asn Glu Val 1820	Gln Glu Arg Leu Asp 1825	Ser Met Ala Arg 1830
Arg Cys Ile Ala His Glu 1835	Gly Asp Ala Pro Gln 1840	Arg Ala Asp Gly 1845

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Leu	Ala	Leu	Gln	Glu	His	Glu	Ala	Ala	Gln	Asn	Arg	Cys	Thr	Thr
1925						1930					1935			
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1955						1960					1965			
Asp	Asn	Val	Gln	Glu	Arg	Asp	Met	Ala	His	His	Arg	Cys	Ala	Ala
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1985						1990					1995			
Lys	Ala	Lys	Leu	Arg	Gln	Ala	Ser	Val	Lys	Ala	Ser	Ser	Leu	Met
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Thr	Arg	Leu	Ser	Ala	Ser	Ser	Ser	Gly	Ala	Gly	Gly	Val	Ser	Ala
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His	Arg	Asp	Ala	Glu	Leu	Ile	Ala	Glu	Val	Gly	Glu	Arg	Leu	Arg
2045						2050					2055			
Glu	Arg	Gly	Glu	Ala	Met	Arg	Leu	Leu	Ala	Glu	Gly	Val	Glu	Leu
2060						2065					2070			
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2075						2080					2085			
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2090						2095					2100			
Pro	Thr	Gln	Val	Arg	Arg	Asn	Ala	Ala	His	Ser	Arg	His	Leu	Asp
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 2120 2125 2130
 Lys Glu Gln Gln Leu Leu Arg Val Ala Arg Glu Leu Gln Thr Lys
 2135 2140 2145
 Ser Arg Ala Leu Gln Val Leu Tyr Ala Arg Ala Leu Asn Arg Pro
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 Tyr Pro Asp Thr Pro Gln Gln Gln Gln Gly Thr Arg Thr Pro
 2180 2185 2190
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 2195 2200 2205
 Gly Arg Thr Ala Gly Ala Ala Val Ser Ser Gly Leu Ala Ser Pro
 2210 2215 2220
 Leu Pro Arg Glu Pro Pro Arg Ala Arg Met Val His Arg Ala Val
 2225 2230 2235
 Glu Ala Thr Gly Thr Glu Glu Asp Thr Gln Val Arg Leu Thr Ala
 2240 2245 2250
 Ala Thr Glu Ala Tyr Arg Asp Val Leu Tyr Glu His Ile Leu Glu
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 Ser Asn Gly Leu Gln Gly Val Asp Val Leu Ala Gln Tyr Leu Pro
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 His His Thr Ser Gly Gly Gly Leu Lys Thr Pro Arg Leu Pro Gly
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 Ser Gly Ile Ile Ser Lys Thr Arg Ala Met Leu Arg Ala Leu Glu
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 Glu Arg Leu Gly Ala Ser Arg Gly Val Gly Arg Gly Val Asp Pro
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35 40 45
Cys Ser Lys Cys Ala Ala Thr Lys Thr Val Ile Pro Arg Tyr Tyr Ser
50 55 60
Asn Glu Thr Val Pro Val Cys Gln Arg Cys Tyr Gln Val Val Glu Arg
65 70 75 80
Tyr Lys Glu Arg Gly Ser Val Thr Pro Gly Tyr Val Val His Ser Thr
85 90 95
Thr Ile Ser Ala Thr Pro Ala Arg Ser Ser Pro Val Pro Pro Leu His
100 105 110
Thr Thr Pro Ala Leu Arg Pro His Ala Pro Ser Pro Gln Pro Ala Ser
115 120 125
Val Val Ser Thr Ala Thr Leu Val His Pro Val Glu Glu Asp Ala Val
130 135 140
Ser Thr Lys Pro Ser Val Ser Glu Ala Asp Leu His Ala Leu Arg Ser
145 150 155 160
Ile Ile Glu Thr Leu Gln Gln Ala Leu Asn Asp Glu Gln His Asn Ala
165 170 175
Ala Leu Ala Ala Thr Ser Ala Ala Glu Gln Leu Arg Thr Ala Lys Glu
180 185 190
Glu Asn Thr Ala Leu Lys Ser Thr Ala His Leu Leu Gln Gln Arg Leu
195 200 205
Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg
210 215 220
Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala
225 230 235 240

Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu
 245 250 255
 Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg
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 Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr
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 Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala
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 Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala Ala Asp Arg
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 Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val
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Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu
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Ala	Gln	Val	Ala	Arg	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg
			580					585					590		
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	595						600					605			
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	610					615					620				
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Glu	Ala	Gln	Leu	Ala	Arg	Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg	Gln
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Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala
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Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala
785					790					795					800
Arg	Val	Ala	Arg	Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg	Gln	Gln	Leu
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Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln
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Gln Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Gly
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 Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln
 850 855 860
 Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val
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 Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala
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 945 950 955 960
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 1025 1030 1035
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 Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala
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 Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu
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 1085 1090 1095
 Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asn Ala Glu Glu Leu
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Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Arg
1145						1150					1155			
Val	Ala	Arg	Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg	Gln	Gln	Leu
1160						1165					1170			
Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr
1175						1180					1185			
Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Gln	Val	Ala	Arg	Leu	Ala	Ala
1190						1195					1200			
Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln
1205						1210					1215			
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1235						1240					1245			
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1310						1315					1320			
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1325						1330					1335			
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1385	1390	1395
Val Ala Arg Leu Ala Ala Asp	Arg Asp Glu Ala Arg	Gln Gln Leu
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Ala Ala Asn Ala Glu Glu Leu	Gln Gln Arg Leu Asp	Thr Ala Thr
1415	1420	1425
Gln Gln Arg Ala Glu Leu Glu	Ala Gln Val Ala Arg	Leu Ala Ala
1430	1435	1440
Asp Arg Asp Glu Ala Arg Gln	Gln Leu Ala Ala Asn	Ala Glu Glu
1445	1450	1455
Leu Gln Gln Arg Leu Asp Thr	Ala Thr Gln Gln Arg	Ala Glu Leu
1460	1465	1470
Glu Ala Arg Val Ala Arg Leu	Ala Ala Asp Gly Asp	Glu Ala Arg
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Gln Gln Leu Ala Ala Asn Ala	Glu Glu Leu Gln Gln	Arg Leu Asp
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Asp Arg Asp Glu Ala Arg Gln	Gln Leu Ala Ala Asn	Ala Glu Glu
1640	1645	1650
Leu Gln Gln Arg Leu Asp Thr	Ala Thr Gln Gln Arg	Ala Glu Leu
1655	1660	1665

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1880						1885					1890			
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1925						1930					1935			

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Val	Lys	Ala	Lys	Leu	Arg	Gln	Ala	Ser	Val	Lys	Ala	Ser	Ser	Leu
1955						1960					1965			
Met	Thr	Arg	Leu	Ser	Ala	Ser	Ser	Ser	Gly	Ala	Gly	Gly	Val	Ser
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1985						1990					1995			
Pro	His	Arg	Asp	Ala	Glu	Leu	Ile	Ala	Glu	Val	Gly	Glu	Arg	Leu
2000						2005					2010			
Arg	Glu	Arg	Gly	Glu	Ala	Met	Arg	Leu	Leu	Ala	Glu	Gly	Val	Glu
2015						2020					2025			
Leu	Arg	Glu	Arg	Ala	Arg	Pro	Leu	Glu	Arg	Val	Leu	Ala	Glu	Lys
2030						2035					2040			
Leu	Ile	Gly	Asp	Arg	Arg	Thr	Ser	Asp	Ala	Glu	Glu	Val	Ala	Thr
2045						2050					2055			
Glu	Pro	Thr	Gln	Val	Arg	Arg	Asn	Ala	Ala	His	Ser	Arg	His	Leu
2060						2065					2070			
Asp	Ser	Arg	Glu	Ala	Gln	Leu	Asp	Glu	Arg	Ala	Ala	Arg	Leu	Arg
2075						2080					2085			
Glu	Lys	Glu	Gln	Gln	Leu	Leu	Arg	Val	Ala	Arg	Glu	Leu	Gln	Thr
2090						2095					2100			
Lys	Ser	Arg	Ala	Leu	Gln	Val	Leu	Tyr	Ala	Arg	Ala	Leu	Asn	Arg
2105						2110					2115			
Pro	Gln	Val	Thr	Ser	Leu	Leu	Leu	Thr	Ala	Asp	Gly	Asp	Asp	Thr
2120						2125					2130			
Ser	Tyr	Pro	Asp	Thr	Pro	Gln	Gln	Gln	Gln	Gln	Gly	Thr	Arg	Thr
2135						2140					2145			
Pro	Leu	Arg	Glu	Pro	Val	Tyr	Ser	Leu	Asp	Ser	Glu	Val	Ala	His
2150						2155					2160			
Tyr	Gly	Arg	Thr	Ala	Gly	Ala	Ala	Val	Ser	Ser	Gly	Leu	Ala	Ser
2165						2170					2175			
Pro	Leu	Pro	Arg	Glu	Pro	Pro	Arg	Ala	Arg	Met	Val	His	Arg	Ala
2180						2185					2190			
Val	Glu	Ala	Thr	Gly	Thr	Glu	Glu	Asp	Thr	Gln	Val	Arg	Leu	Thr
2195						2200					2205			
Ala	Ala	Thr	Glu	Ala	Tyr	Arg	Asp	Val	Leu	Tyr	Glu	His	Ile	Leu

2210	2215	2220
Glu Ser Asn Gly Leu Gln Gly Val Asp Val Leu Ala Gln Tyr Leu		
2225	2230	2235
Pro His His Thr Ser Gly Gly Gly Leu Lys Thr Pro Arg Leu Pro		
2240	2245	2250
Gly Ser Gly Ile Ile Ser Lys Thr Arg Ala Met Leu Arg Ala Leu		
2255	2260	2265
Glu Glu Arg Leu Gly Ala Ser Arg Gly Val Gly Arg Gly Val Asp		
2270	2275	2280
Pro Ala Val Gln Glu Arg Ser Leu Glu Ala Phe Arg Arg Leu Glu		
2285	2290	2295
Ala Ala Leu Ser Ala Leu Cys Gly Gly Ser His Ala		
2300	2305	2310

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Asp Gln Glu Leu Ser Ile Leu Lys Leu Ile Leu Asp Leu Arg Ser Leu		
20	25	30
Gly Asp Val Glu Gly Ser Lys Lys Val Arg Arg Arg Val Arg Glu Ala		
35	40	45
Leu Leu Lys Ser Ser Asp Asp Ser Glu Ala Met Ser Lys Val Asp Asp		
50	55	60
Ile Ile Arg Arg Gly Lys Arg Thr Gln Ser Lys Leu Asp Gly Ser Tyr		
65	70	75 80
Asp Glu Arg Gln Arg Leu Lys Arg Lys Arg Arg Glu Glu Asp Leu Ala		
85	90	95

Ala Ala Ser Arg Leu Val Asp Val Glu Ala Gly Ser Gly Glu Asp Ser
 100 105 110

Glu Gly Ser Ala Ser Thr Glu Glu Asp Gly Thr Glu Asp
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Gln Pro Asn Asp Leu Ile Glu Ala Leu Asn Gly Thr Arg Val Arg Asn
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Val Gly Asp Phe Arg Arg Val Ile Glu Glu Glu Leu Thr Pro Gly Met
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Ile Val Pro Val Arg Ile Asn Arg Gly Gly Val Ala Met Val Val Thr
 35 40 45

Val Arg Val Glu Ala Gly Arg Ser Leu
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 1 5 10 15

Val Lys Ala Cys Asn Asp Arg Ser His Arg His Thr His Thr His Thr
20 25 30

His Thr Asn Ser Phe Val Ser Gly Asp Val Phe His Val Trp Arg Val
35 40 45

Arg Ser Phe His Ser Ala Pro Ser Val Phe Phe Cys Phe Ser Val Cys
50 55 60

Thr His Leu Leu Phe Ser Pro Ser Ser Pro Tyr Ala His His Ala Arg
65 70 75 80

Val Cys Val Arg Ala Cys Val Cys Val Cys Val Cys Val Val
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Pro Leu Leu Lys His Tyr Ser Arg Gly Met Ala Ser Ser Gly Ser Ala
20 25 30

Lys Asp Asp Ala Leu Phe Leu Val Arg Arg Pro Lys Tyr Leu Val Ala
35 40 45

Gln Ala Val Asn Leu Ser Gly Ser Val Val Phe Phe His Ser Leu Arg
50 55 60

Glu Val Asp Val Ser Val Gly Ser Ile Val Val Asn Ser Leu Ala Phe
65 70 75 80

Val Ile Thr Val Leu Met Ser Val Leu Val Leu Arg Glu Gly Leu Leu
85 90 95

Arg Ala Arg Thr Thr Ala Gly Cys Leu Leu Val Met Val Gly Thr Ala
100 105 110

Leu Cys Thr Tyr Ser Ser Ser Ala Ser
115 120

155/155